KEYENCE

NEW PRODUCTS
LINEUP CATALOGUE
2022-2023

KEYENCE VALUE

KEYENCE has steadily grown since 1974 to become a world leader of innovation in the development of automation, quality assurance and R&D.

KEYENCE products are used in a wide variety of industries and fields

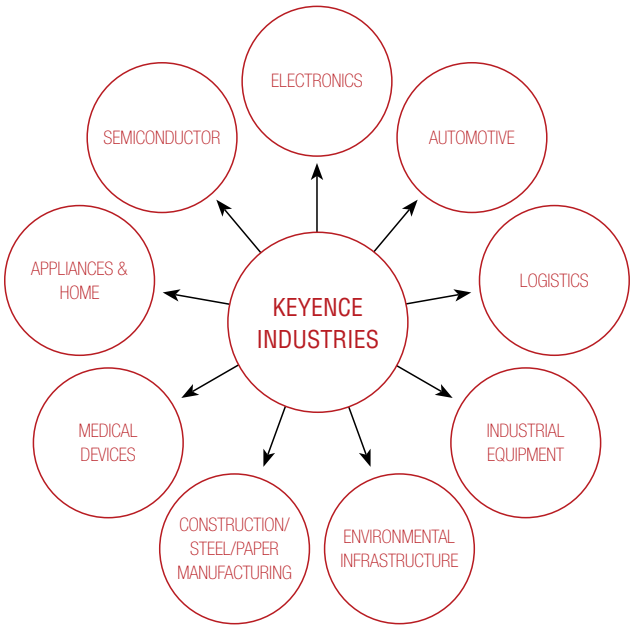
KEYENCE offers a wide range of factory automation products including automation sensors & safety equipment, static eliminators, barcode readers, measuring instruments, vision systems, laser markers and digital microscopes.

Innovation

KEYENCE has been ranked as one of Forbes' "World's Most Innovative Companies" every year since the list's inception in 2011. Our products not only meet current but also future customer requirements in many manufacturing and R&D industries. We have also been named one of Business Week's "1000 Best Valued companies.

Versatile Products

Products for manufacturing and research and development: Sensing, Vision, Measurement, Laser Markers and Microscope products
KEYENCE products are designed to add value to the manufacturing and research practices of our customers. Our products are engineered to be versatile, so they can be used in every industry for a wide variety of applications. KEYENCE offers the world's best products for today and tomorrow's application needs.



Corporate Information

Global Headquarters: Osaka, Japan
Founded: May 1974
Capital: 215,757,000 EUR
2022 Global Sales: 6,495,932,000 EUR
Worldwide Employees: 10,580

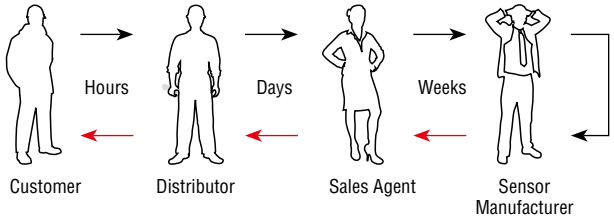
Note: Euro amounts are converted from Japanese yen for convenience only at 142 JPY = 1 EUR, the approximate exchange rate on March 20, 2023.

KEYENCE Service & Support

DIRECT SALESNETWORK

KEYENCE incorporates direct sales rather than having distributors or sales agents. Our technically trained sales engineers have extensive product knowledge along with application and industry experience. Customers can expect on-site support to quickly solve applications saving invaluable time.

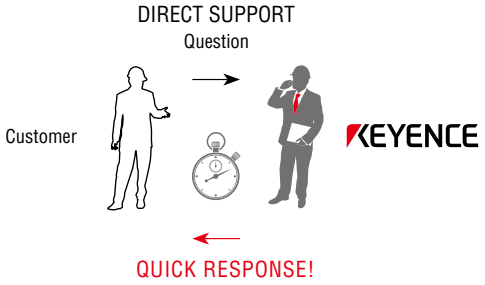
OTHER COMPANIES



ONSITE LINE OPERATIONS STALL WHILE WAITING FOR SUPPORT

You need direct access to the people that can provide you with quick and practical solutions.

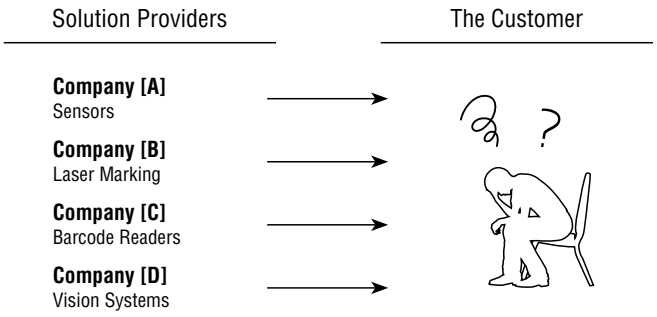
KEYENCE



VALUE ADDED PRODUCTS

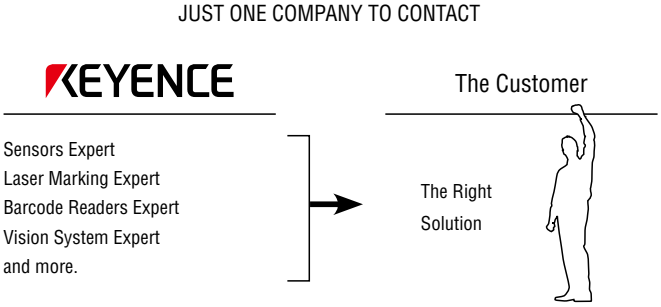
KEYENCE sells a broad range of products, enabling comprehensive support for a wide range of equipment across all industry sectors. Find your solution efficiently and avoid having to consult with multiple vendors.

CONVENTIONAL SALES



Consulting with and managing multiple solution providers is troublesome and time consuming.

KEYENCE



SAME DAY SHIPPING

With most items in stock, received orders can ship the same day, reducing your overhead costs and losses due to work stoppage.

YOUR LOCAL PLANT

KEYENCE PRODUCTS
CONTINUE TO IMPROVE

Digital Fibreoptic Sensor
FS-N/FU Series

P. 6

Safety Laser Scanner
SZ-V Series

P. 13

All-purpose
Laser Sensor
LR-T Series
Full-Spectrum Sensor
LR-W Series

Self-contained
CMOS Laser Sensor
LR-Z Series
Ultra compact
LR-X Series NEW

P. 7

Safety Interlock switches
GS Series

P. 14

Clamp-on
Flow Sensor
FD-H Series NEW

P. 8

Ultra-compact coaxial laser displacement sensor for any application in any location
CL-3000 Series

P. 15

Digital Refractometer
FI-C Series NEW
Temperature Sensor
FI-T Series NEW

P. 9

Ultra high-precision
2D/3D Laser Profiler
LJ-X8000 Series

P. 16, 17

CLAMP-ON to Monitor
Micro Flow Anywhere
FD-X Series

P. 10

Silhouette-based analysis for guaranteed accuracy
TM-X5000 Series NEW

P. 18

The Next Evolution
in Communication
NQ Series NEW

P. 11

High-speed Optical Micrometer
LS Series

P. 19

Safety Light Curtain
GL-R Series

P. 12

1D/2D Code Readers
SR Series

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CMOS Multi-Function
Analogue Laser Sensor
IL Series

P. 22

Multi-Purpose CCD Laser
Micrometer
IG Series

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Vision Sensor with Built-in AI
IV2 Series

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High-Accuracy
Digital contact Sensor
GT2 Series

P. 26

Introducing a Completely New
Detection System— IX-H Technology
IX Series

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Ultra High-Speed
Sheath-Sensing Ioniser
SJ-H Series

P. 28, 29

Hybrid Ultra High-speed
Sensing Ioniser
SJ-E Series NEW

P. 30

Easy Static Elimination for
Every Application
SJ-L Series NEW

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Vision System
with Pattern Projection Lighting
CV-X Series

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Customizable Vision System
XG-X Series

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Image Dimension
Measurement System
IM Series NEW

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Digital Microscope
VHX Series

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3D Optical Profilometer
VR Series NEW

P. 40

3D Laser Scanning Microscope
VK-X Series NEW

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Handheld Computers
BT-A700 Series NEW
Increased Operation Speed with Android™
BT-A500 Series NEW

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3-Axis Hybrid Laser Marker
MD/ML Series NEW

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DIGITAL FIBREOPTIC SENSOR

FS-N/FU Series

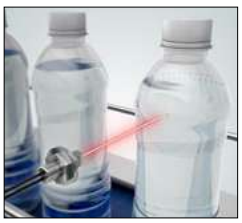
Digital Fibreoptic Sensor

Scan for More

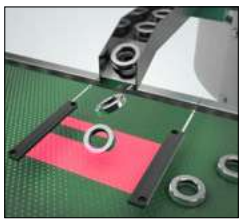
DETECT ANYTHING

Contrast/Surface Finish

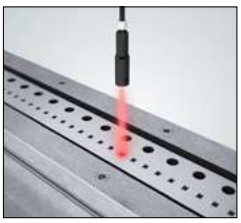
Distant Targets



Transparent Targets

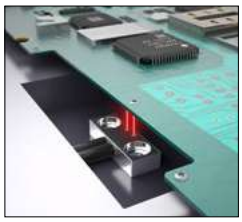


Targets with Variable Positions



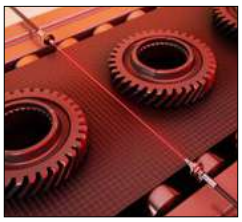
Small Targets

DETECT ANYWHERE

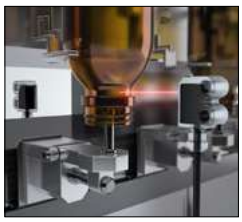


Tight Spaces

Oily/Watery Environments



High temperature Environments



Chemical Environments

Robotic Arms

LINEUP

Cable Type

Type		Model		Control output	External input
		NPN output	PNP output		
Standard	Main unit	FS-N41N	FS-N41P	1	0
	Expansion unit	FS-N42N	FS-N42P		
2-Output	Main unit	FS-N43N	FS-N43P	2	1
	Expansion unit	FS-N44N	FS-N44P		

M8 Connector type

IO-Link

Type	Model	Control output	External input
	Switchable between NPN/PNP output		
Main unit	FS-N41C	2*	1*

*Switchable between 2 control outputs + 0 external inputs, or 1 control output + 1 external input.
The system is not compatible with expansion units.

Zero line type

Type	Model	Control output
Expansion unit	FS-N40	None*

*Counted as 1 output if expanded with Multi-Output Unit FS-MC8N/P or the NU Series communication unit.

LASER SENSOR

LR-T Series

All-purpose Laser Sensor

HS² Technology

HS²: High-speed & High-sensitivity

"HS² Technology" combines the Time of Flight (TOF) detection method with a custom integrated circuit, allowing for consistently stable detection over long distances, regardless of target colour, surface finish, or angle.

LASER SENSOR

LR-Z Series

Self-contained CMOS Laser Sensor

Best detection ability in its class

CMOS Laser + BGS + FGS

Durable & Long life

High enclosure rating and Stainless steel body (SUS316L)

FULL-SPECTRUM SENSOR

LR-W Series

Full-Spectrum Sensor

Detects the changes in Intensity and colour of the workpiece by use of a White LED, Auto Power Control and Custom Light receiving elements. Stable detection of Similar Colour targets and Tilted Targets.

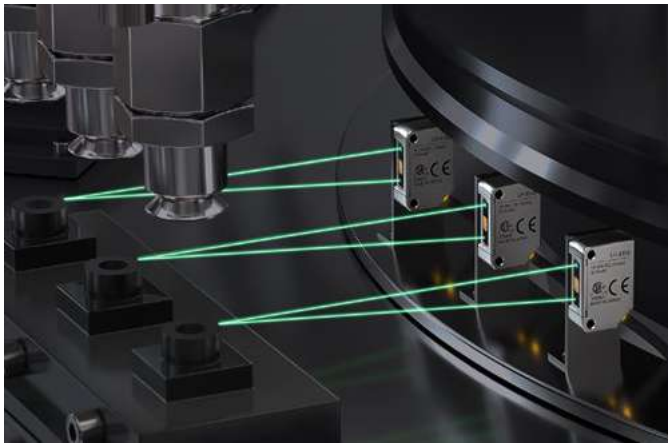
Scan for More

DIGITAL CMOS LASER SENSOR

LR-X Series

Ultra compact

NEW



It can be installed in spaces that are just too small. This in turn alleviates much of the effort around designing and adjusting equipment so as to accommodate the sensor.

CLAMP-ON FLOW SENSOR

FD-H Series

Clamp-on Flow Sensor

NEW

Scan for More

Any Liquid

Improvements in the sensing technology in the FD-H Series make it possible to detect the majority of liquids.

Any Condition

The new hybrid detection method, utilised by the FD-H Series, makes it possible to continue detecting in the presence of bubbles or particulates to provide unmatched stability.

Nearly Any Temperature

Even under extreme circumstances where the pipe temperature is exceedingly hot, the FD-H Series can still provide a solution.

Benefits of Clamp-On:

KEYENCE is the world leader in Clamp-On flow monitoring.
This revolutionary technology has made flow monitoring possible in more places than ever before by making implementation easier and less cumbersome than conventional flow sensors.

No Pipe Modifications	No Pressure Loss
No Downtime	No Contamination
Fast Installation	No Leakage
No Clogging	No Maintenance

DIGITAL REFRACTOMETER

FI-C Series

Digital Refractometer

Scan for More

NEW

Measuring Refractivity

The FI-C Series operates by measuring the refractive index of the liquid and converting this value to a Brix%. This is done by monitoring how much light is reflected off of the inner surface, as opposed to being absorbed by the liquid. As concentration changes, so does the refractive index. This is especially useful for water-based coolants.

Stable and Reliable Detection

By utilising an innovative wide area light method, the FI-C Series is able to provide consistent and stable detection in harsh conditions.
The wide area light ensures that bubbles and dirt on the lens do not affect detection. The surface is also rugged and resistant to scratching from particulates that may be in the liquid.

TEMPERATURE SENSOR

FI-T Series

Temperature Sensor

NEW

Easy Installation

Eliminate downtime and installation time by simply clamping the FI-T Series temperature sensor on the outside of the pipe. The FI-T Series offers several different models that are compatible with a range of pipes from ø8 - 220 A (ø8 mm to 220 mm) in size. All of these models can be mounted in seconds to start monitoring temperature immediately.

Dedicated Display Amplifier

The FI-T Series can be connected to the FD-H, FI-1000, or even used by itself. In all situations, the FI-T offers a dedicated display that can be mounted near the unit for monitoring with a quick glance. The OLED display can be easily read and also allows for quick adjustments on the fly.

CLAMP-ON MICRO FLOW SENSOR

FD-X Series

CLAMP-ON to Monitor Micro Flow Anywhere

EtherNet/IP

DeviceNet

CC-Link V2

EtherCAT

IO-Link

Scan for More

Micro Flow Monitoring for Limitless Uses

Viscous Liquids

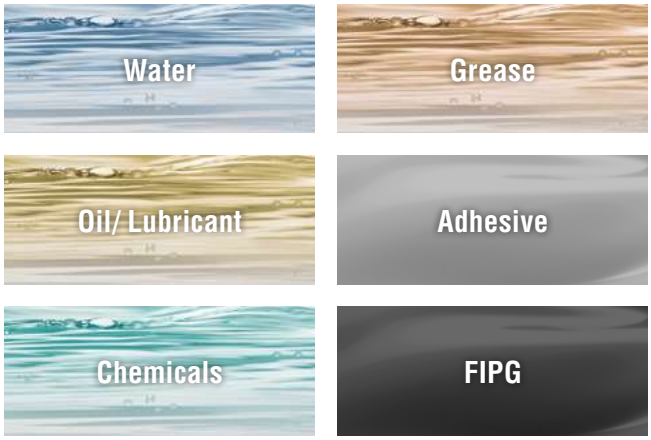
The FD-X Series provides stable detection of all liquids, including those that are highly viscous (ex. grease, adhesives, etc), due to its high power.

Corrosive Liquids

The non-contact detection method allows for corrosive liquids to be easily monitored without the fear of damaging the unit.

Sanitary Liquids

The risk of contamination is eliminated because no process modifications are necessary and the sensor does not touch the liquid.



Any Tube/Pipe

The FD-X Series is compatible with metal pipes, plastic tubes, and uniform rubber hosing. These sensors will be able to easily Clamp-On pipes/tubes ranging from 3 mm to 14 mm.

Plastic/Rubber Pipes: ø3-12 mm
Metal Pipes: ø3-14 mm

* EtherCAT® is registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.

NETWORK COMMUNICATION MODULE

NQ Series

The Next Evolution in Communication

Scan for More

NEW

EtherNet/IP

PROFINET

EtherCAT

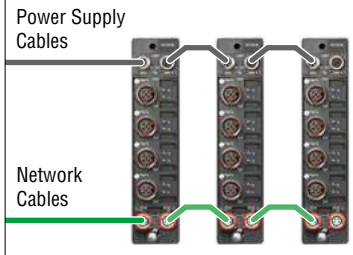
Modbus/TCP

IO-Link

Any System

Regardless of the number of sensors on the machine or the network protocol being used, the NQ Series can adapt to any setup. These units are compatible with all major network protocols and can be cascaded in series to handle countless devices.

Cascade Connection



*The number of units that can be added varies depending on the connected devices.

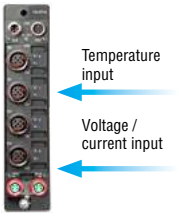
Any Device

The NQ Series can be the hub for all devices, not just IO-Link devices. This series features units designed specifically to incorporate Temperature, Analogue, and Digital I/O devices into one complete system.

Analogue and Temperature Devices

Temperature/ Analogue Input Module NQ-EP4A

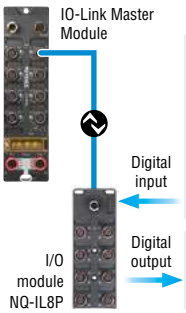
A single unit can accommodate a variety of inputs.



Non-IO-Link Equipment
- Thermocouples
- RTD
- Voltage analogue device
- Current analogue device

*Input mode can be set for each port.

Basic Digital I/O Devices



Non-IO-Link Sensors
- Proximity sensor (3-wire)
- Photoelectric sensor
- Laser sensor

Non-IO-Link Devices

*Only for PNP input/output devices

Any Location

Featuring impressive IP65/67/69K enclosure ratings, for complete dust and liquid resistance, these blocks can be mounted in any environment / location. Slim body models are also offered to help in situations where space is limited.

Waterproof/Oil-proof Structure

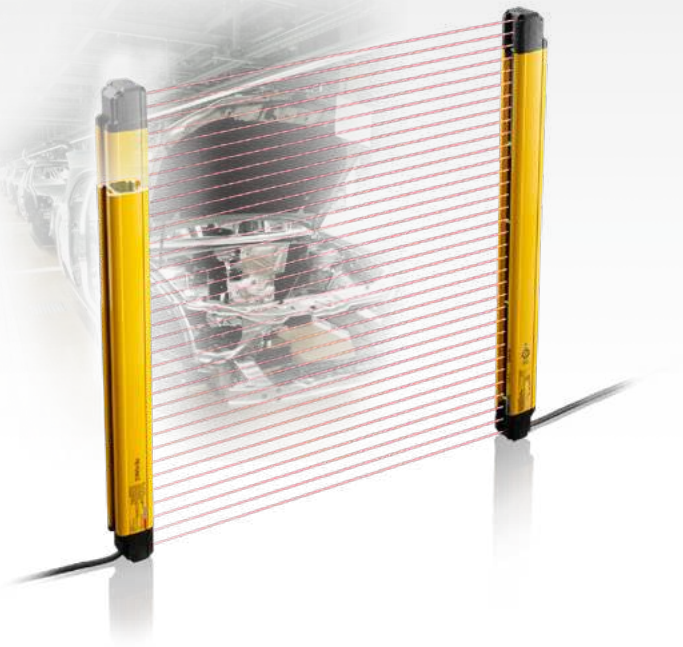
Slim Body

SAFETY LIGHT CURTAIN

GL-R Series

Safety Light Curtain

Scan for More



Strong

Built-in guarding and the narrowest exposed lens surface in the industry

With its narrow (9 mm wide) and recessed lens surface, the GL-R Series is protected against impact and resultant damage from parts, tools or operators without the need for any additional guards or covers.
Additionally, the GL-R Series is protected from water and washdown environments due to its IP65/67 enclosure ratings.

Smart

No Dead Zone

Because the first beam is emitted 10 mm* from each end, the light curtain can be mounted flush inside of equipment, eliminating the need for additional guarding or outside mounting.

*Except GL-RL Series

Simple

Reduce installation time with simple wiring and easy-to-use mounting brackets

The introduction of the one-line system and optical synchronisation simplifies connections to as few as 5 wires. Mounting brackets come pre-assembled to provide simple, one-step installation.

LINEUP

GL-RF	GL-RH	GL-RL
		
Detection capability: ø14 mm Beam axis pitch of 10 mm. Entry detection	Detection capability: ø25 mm Beam axis pitch of 20 mm. Entry detection	Detection capability: ø45 mm Beam axis pitch of 40 mm. Entry/presence detection

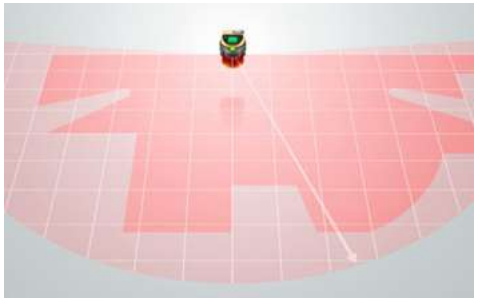
Safety Laser Scanner

Scan for More

Wide area coverage

Maximum protection zone of 8.4m
Fine pitch x Multi-sampling

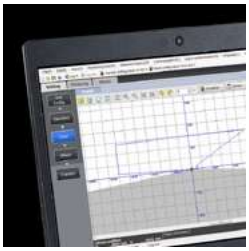
The SZ-V has a maximum protection zone of 8.4 m. New technology helps reduce detection errors due to misty or dusty enviroment and contributes to maintain a high level of productivity.



Status monitoring with just a main unit

Monitor view/ camera view
Display unit separation

The SZ-V brings together the world's first concept featuring a main unit LCD and a detachable system in an effort to resolve the inability to visually see the point of detection, a common concern with conventional laser scanner models.



Easy to use in all scenarios

Drawing Assist Function
Module structure

The SZ-V is designed for ease of use in a variety of situations, from laser scanner configuration to maintenance. This helps to reduce the number of man-hours required.

LINEUP

Integrated system

Separate system

Safety Interlock switches

Scan for More

Intuitive design

- Compact Size
- Robust Construction
- Highly Visible Indicators

Versatile mounting

- Flexible & Direct Installation
- Reliable & Consistent Alignment
- Dedicated Brackets

Seamless system integration

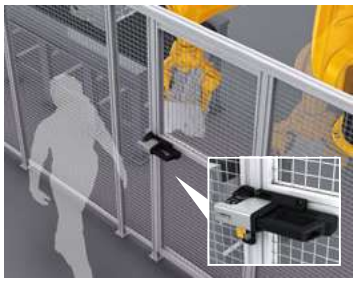
- Built-in Cascading
- Additional I/O for Monitoring
- Simplified System Wiring

POWER-TO-RELEASE

Properly guard machines with long stop times.

POWER-TO-LOCK

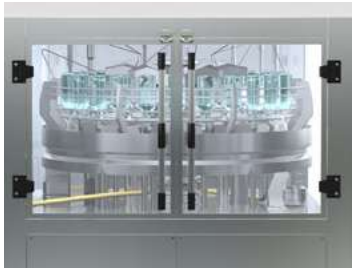
Guard machines that stop immediately upon loss of power.



NON-CONTACT TYPE

Door Switch:

Monitor door status without concern for build-up or damage.



Origin Sensor:

Ensure moving components are located in the correct home positions.

CONFOCAL DISPLACEMENT SENSOR

CL-3000 Series

Ultra-compact coaxial laser displacement sensor for any application in any location

Scan for More

High-precision measurement on any material or surface

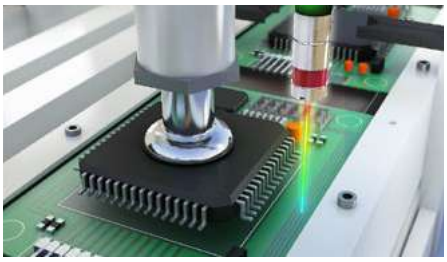
Addresses manufacturing challenges such as improving quality, preventing the shipment of defective parts and increasing yield rates to improve quality inspection reliability.

Ultra-compact and lightweight

Effective on curved, uneven and rough surfaces

High precision regardless of the material

APPLICATIONS



Height correction of a chip mounter

The CL-3000 is used to measure the height to the board.
By monitoring the position of the Z-axis, the customer is able to prevent mounting defects and dramatically improve yield.

Camera module vibration and stroke measurement

The CL-3000 Series can perform high-speed and highly accurate measurements, has a wide measurement range, and greatly reduces the amount of work involved with evaluations. Coaxial measurement enables accurate measurements even in a narrow space without the light being blocked by a perpendicular surface. Damping and other behaviour can be accurately captured.

Detection of missing rollers in duplex bearings

The bearing is rotated, and the CL-3000 counts the number of rollers to detect missing ones. Rollers have mirror surfaces, causing general-purpose laser sensors to have difficulty performing this operation in a stable manner.
The CL-3000 Series uses a multi-colour confocal method, which enables reliable detection regardless of target material or colour.

Measurement of electrode coating thickness

The CL-3000 Series performs electrode-coated thickness measurements of workpieces in a wet state. Up to three measurements are possible simultaneously. By installing a number of units across the width, thickness control with finer intervals is possible.

Coating and extrusion roller vibration measurement

Using two heads makes it possible to measure both the vibration and parallelism of rollers with mirror surfaces simultaneously.
The CL-3000 Series uses a non-contact method, so it provides improved quality with no roller damage.

Touch panel electrode shape measurements

Conventionally, these measurements have been performed with surface roughness meters. Not only did these measurements take a long time but the measured target had to be discarded.
The CL-3000 Series can perform non-contact measurements, so the time required is 1/10th that of conventional measurements and there is no need to discard the measured target, which leads to reductions in cost.

2D/3D Laser Profiler

LJ-X8000 Series

Ultra high-precision 2D/3D Laser Profiler

Scan for More

Measure Any Target with High Precision

High-Resolution Inline Measurement: 3200 points/profile
Supports a wide range of applications, from profile measurement to 3D inspections.

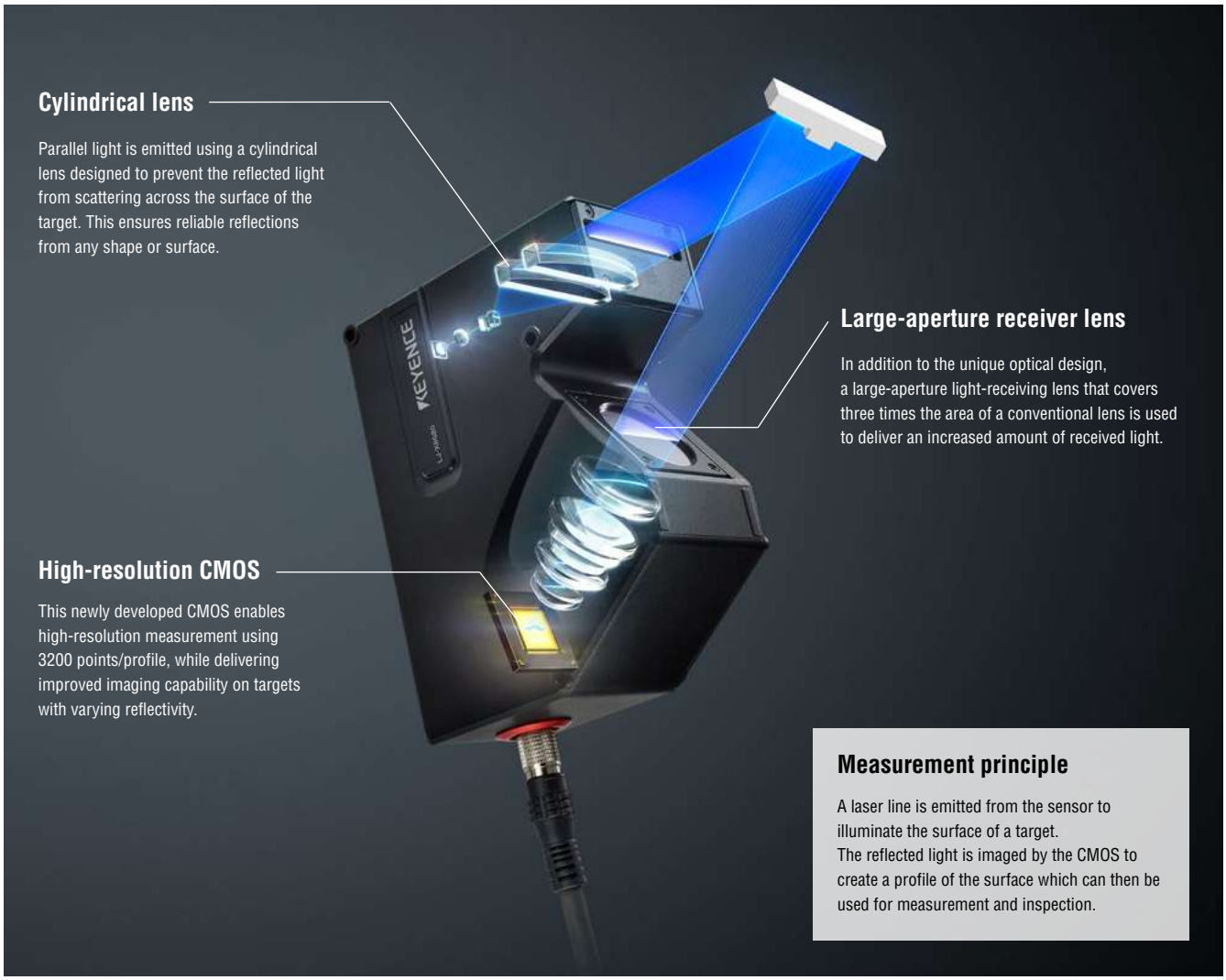
High-resolution measurement: 3200 points per profile

Select from a lineup designed to meet any application requirements

PC-based support

Maximizing resolution and target detection

To improve the resolution of the sensor, the number of pixels on the CMOS needs to be increased. This can be accomplished by making each pixel smaller; however, smaller pixels can result in insufficient light to create an accurate profile of some targets.
For the LJ-X Series, we've implemented new technology to create a laser profiler capable of high-resolution measurement on any target.



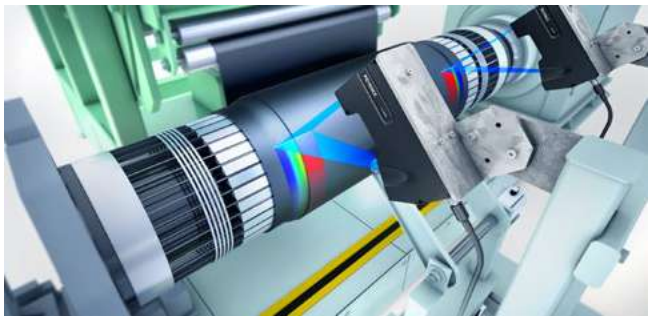
APPLICATIONS

PCB chip height

Inspect the height, position, and shape of a mounted part. By using parallel light, the sensor captures target shape accurately, right down to the fine details.

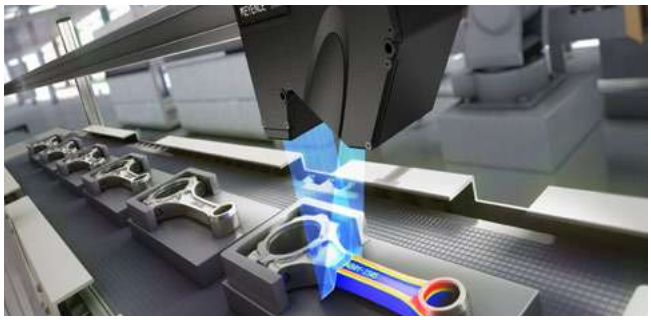
Smartphone assembly

Targets with multiple materials can be captured in a single profile, allowing measurements to be made between glass and metal surfaces. The LJ-X Series is equipped to handle reflectances ten times higher than conventional products.



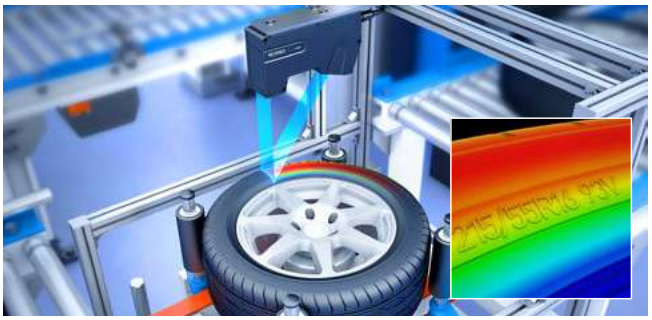
Sheet thickness, width, and edge profile

Measures edge position, width and height-difference for rubber sheets on rollers to detect defects. 2-head measurement allows for simultaneous left and right edge detection.



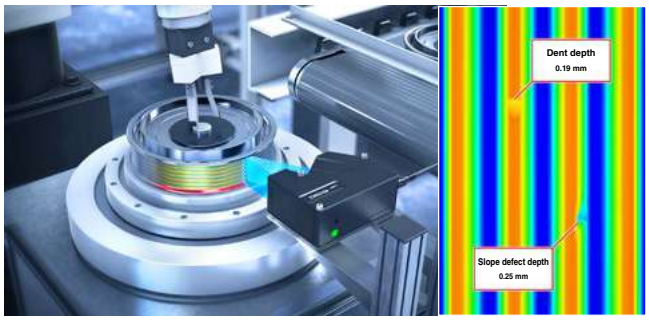
Connecting rod profile identification

Conventional sensors and imaging processing had difficulty recognising complicated shapes, such as connecting rods. The ability to read three-dimensional profiles makes it possible to identify incorrect items and perform inspections for defects.



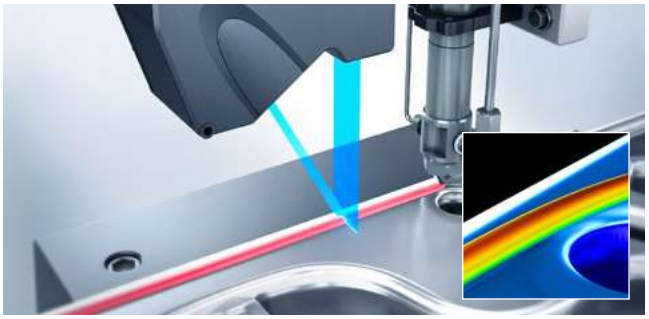
Tire shape / DOT code inspection

With improved X-axis and Z-axis precision, it's possible to hold tighter tolerances over a wider inspection area. This significantly expands the types of applications that can use 3D measurement.



Pulley shape measurement

With the stray light suppression function it is possible to reliably measure even targets that tend to cause diffuse reflections, such as pulleys. The effects of stray light due to multiple or scattered reflections from glossy targets are suppressed, allowing profiles to be accurately captured and various dimensions, such as angles and radius, to be measured.



Sealant height, width, and volume

Improve quality control by confirming sealant bead height, width, and area, rather than checking for presence alone. Even sudden, small abnormalities can be detected.

Post-welding inspection

Bead profile measurement makes it possible to inspect work for melting, undercutting and so forth after welding. When the measurement device is run behind the welding torch, it performs in-line automatic inspections of all items and determines the quality of the weld using the profile, eliminating misdetections caused by color abnormalities.

TELECENTRIC MEASUREMENT SYSTEM

TM-X5000 Series

Silhouette-based analysis for guaranteed accuracy

Scan for More

NEW

Fast and accurate inline measurement

Measure parts in motion

Shortest exposure time: 25 µs

Calibrated high-speed measurement

Dual telecentric optical system

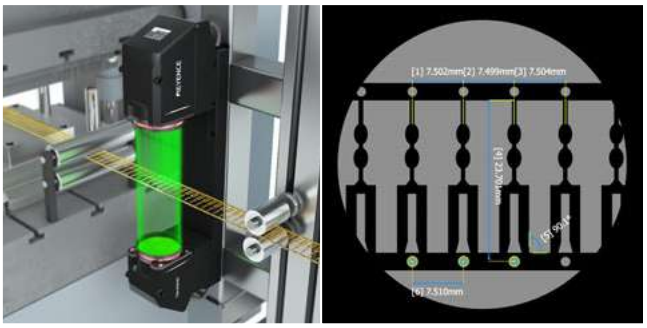
All-in-one setup for robust inline measurement

Large depth of field: ±15 mm

Versatile solution for any industry

GD&T

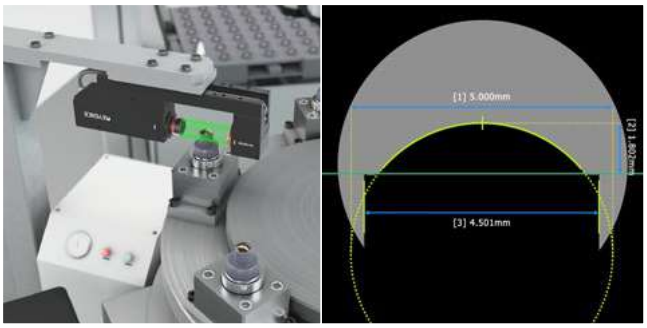
Instant measurement of all drawing instructions



Lead frame dimensions

Outer diameter/profile

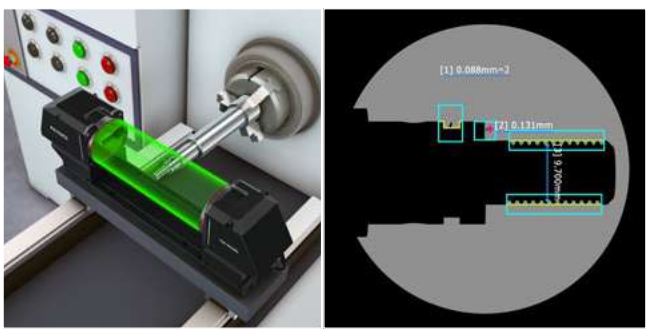
Batch measurement of up to 100 dimensions (diameter, width, height, radius, etc.)



Lens diameter/height

Abnormality detection

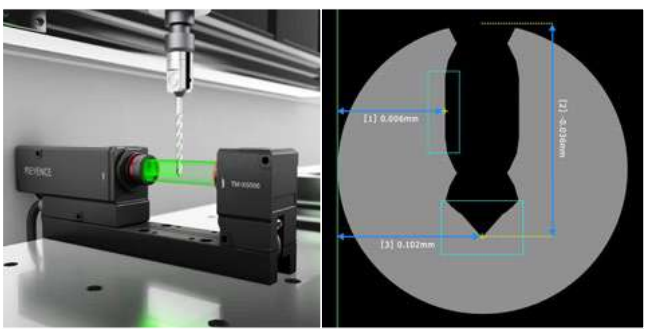
Detect foreign particles, flaws, burrs, or chips, while performing dimensional measurement.



Shaft diameter and foreign particle detection

Runout and positioning

Measure runout for rotating targets and get position feedback.



Tool run-out/positioning

High-speed Optical Micrometer

Scan for More

Three separate CMOS sensors provide advanced measurement capabilities

High-speed CMOS

16000 Hz sampling

By integrating the peripheral circuits of the measurement CMOS into one chip, the S/N ratio has been dramatically improved and high-speed sampling achieved. For example, targets that move at 1000 m/min. can be measured at a pitch of around 1 mm. Even parts that vibrate at high speeds can be measured stably.

Monitor CMOS

Alignment adjustment*1

Recognises the misalignment of a workpiece from the image taken by the monitor CMOS. Inclination error is removed automatically and does not affect the measurement result.
The captured image can also be checked with computer software so even novices will have no problem taking measurements.

*1 Functions of the LS-9006M and LS-9030M heads only.

Target positioning CMOS

Transmitter/receiver direction and position measurement*2

With the additional data obtained from the target positioning CMOS, the LS-9000 can determine the position of the target in both the X and Y axes.

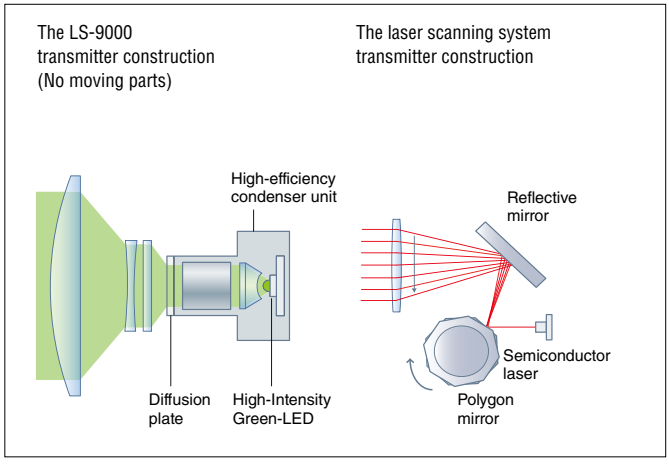
*2 Functions of the LS-9006 (M) and LS-9030 (M) heads only.

Our proprietary wear-free construction

As a high intensity Green LED is used to generate the measurement beam, laser degradation typical with traditional systems is completely avoided. In addition, as the entire beam is generated with no moving parts, there is no motor or mirror system to wear out or replace.

Best in class environmental resistance design

The system enclosure maintains an IP67 rated protection for all internal components. In addition, the LS-9000 Series heads come standard with a built in air purge mechanism* to further enhance the system's resistance to environmental influence.



Meets the IP67 standard

Built-in air purge units

* The air purge unit is sold as an optional accessory only for the LS-9120M head.

CODE READER

SR Series

1D/2D Code Readers

Designed to read all types of codes in all types of conditions

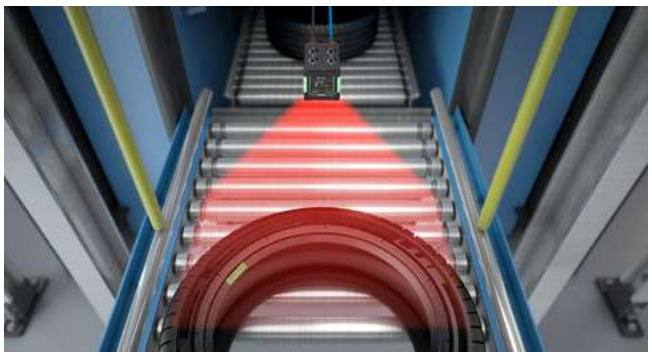
Scan for More

EtherNet/IP

PROFINET

1D/2D Code Reader

SR-2000 Series



2× greater than conventional models

Ultra-wide field of view

- No need to check code positions
- Read multiple codes all at once

2× greater than conventional models

High-speed code reading

- Read codes without having to stop the target
- Read codes on rotating targets without trouble

Logistics Code Reader

NEW **SR-5000** Series

2× greater than conventional models

Greater depth of field at longer ranges

- No code position controllers or tooling changes required
- Read minute codes at long distances

Fully automatic calibration

- Designed for ease of use
- No expert imaging knowledge required, and no need to select additional external equipment (lenses, lighting, etc.)

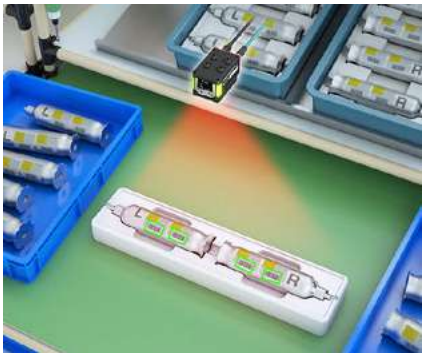
Improved code reader operation regardless of industry or item

This section introduces examples where code reader usage improves work efficiency through such means as traceability and error prevention. With the ability not only to read codes but also to improve workability and to enable value-based management, the SR-2000 Series reduces costs, improves quality, and shortens delivery times.

Ultra-wide field of view

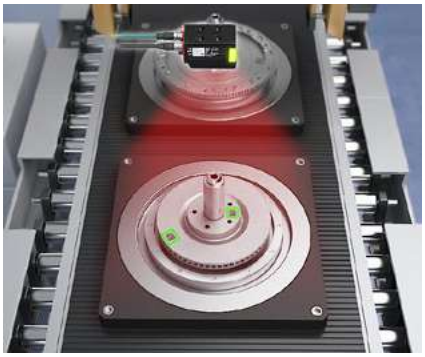
Reading upon warehousing reception

Reading is possible when receiving a product at the warehouse even if the label position height is not uniform.



Airbag model verification

Reading can be accomplished while distinguishing between codes on components with specified left and right sides.



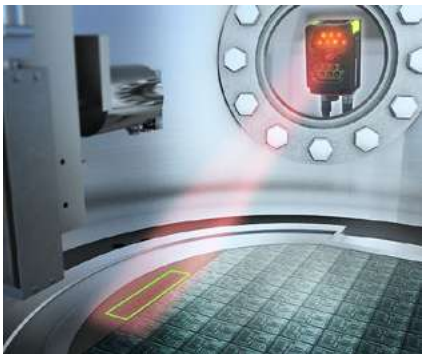
Reading of multiple codes on flywheel

Codes near the axis and on the circumference can be read with no repositioning required.

Incredibly deep depth of field at longer ranges

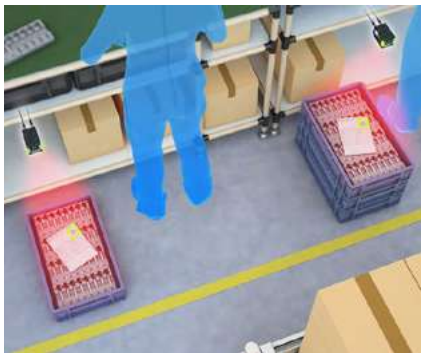
Reading of components during hanger transfer

Codes on hanging doors being transported can be read from a fixed position even with the doors swaying back and forth.



Code reading through glass

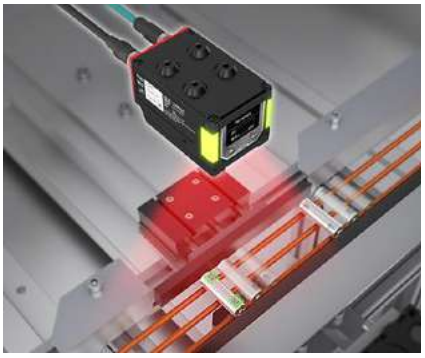
Read through viewports on vacuum devices that do not allow the use of electronics inside.



Hands-free reading for reduced manual labour

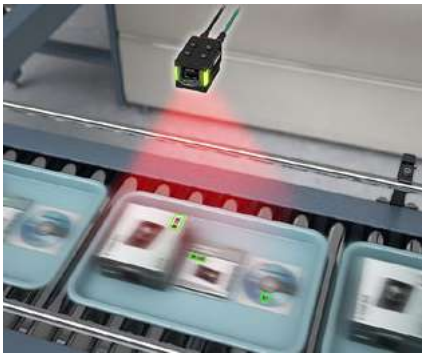
Read codes even if the height of boxes stacked underneath varies.

Read objects on the move



Simplified transportation of lithium-ion batteries

Read codes on curved surfaces of batteries even while the batteries are rotating.



Verification of inclusion of individually packaged products

Read part numbers on the outside of packages and codes on instruction manuals to be enclosed without stopping the line.

Gate-type reading of labels with undefined locations

Achieve stable reading even on cardboard boxes of varying widths and with labels applied in various locations.

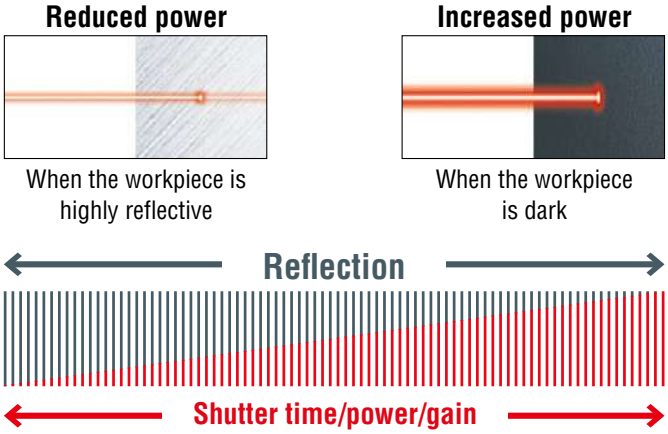
CMOS Multi-Function Analogue Laser Sensor

Scan for More

SCAN function with wide dynamic range

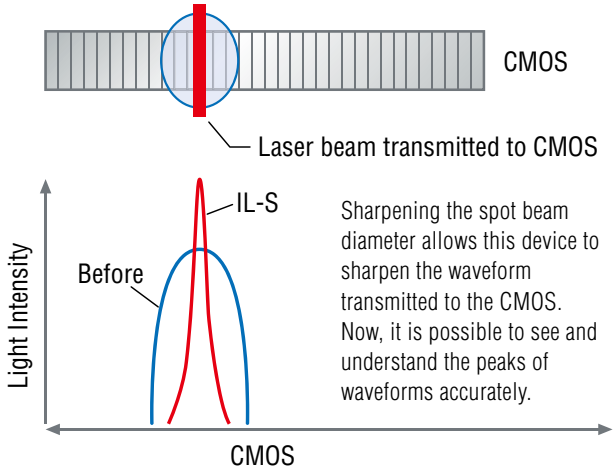
SCAN (=Sensitive-laser Control Analyser)

The laser power, shutter time and reception gain on this device are adjusted in real-time in order to deliver stable detection for all targets. We also developed a new digital circuit that enables a dynamic range of x1.5 million, 2.5 times higher than previous models. Real-time control that suits targets and their surface conditions enables stable detection.



Sharp-Line Beam

KEYENCE's original optical system pushes the beam diameter to the limits (25 µm), and its sharpness enables the most excellent stability in history. We have overhauled and optimised our optical system for spot profiling for stability in applications that, until now, yielded very erratic results.



Sharpening the spot beam diameter allows this device to sharpen the waveform transmitted to the CMOS. Now, it is possible to see and understand the peaks of waveforms accurately.

APPLICATIONS

Detecting welding seams

Control marking height

LASER MICROMETER

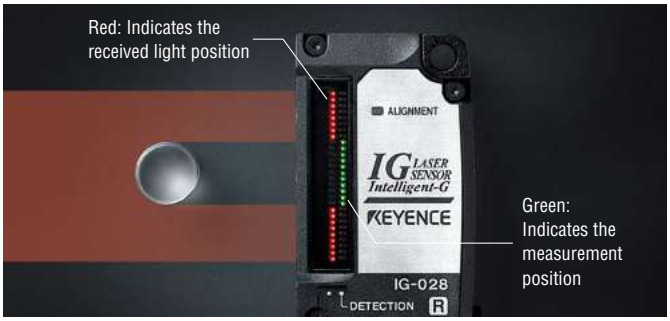
IG Series

Multi-Purpose CCD Laser Micrometer

Scan for More

Extremely easy to use due to the built-in position monitor

The position monitor on the IG Series sensors makes it possible to visually check how a target is detected. The user can prevent mounting or setting errors by observing the red lights that indicate the received light position and the green lights that indicate the measurement position.



Easier optical axis alignment

The position monitor makes it easier to align the optical axis. Easily perform optical axis alignment by adjusting the sensor head so that all of the position monitor lights turn red.

Optical axis alignment in progress

Optical axis alignment complete

SPECIFICATIONS

Sensor heads

Model	IG-010	IG-028
Appearance		
Measurement range	10 mm	28 mm
Mounting distance	0 to 1000 mm	0 to 1500 mm
Repeatability	5 µm (Setting distance: 100 mm) 10 µm (Setting distance: 500 mm) 80 µm (Setting distance: 1000 mm)	5 µm (Setting distance: 100 mm) 10 µm (Setting distance: 500 mm) 80 µm (Setting distance: 1000 mm) 140 µm (Setting distance: 1500 mm)
Linearity	±0.28% of F.S. (±28 µm)	±0.1% of F.S. (±28 µm)

Display unit (amplifier)

Model	IG-1000	IG-1500	IG-1050	IG-1550
Appearance				
Amplifier type	DIN rail mount	Panel mount	DIN rail mount	Panel mount
Main unit/Expansion unit	Main unit		Expansion unit	

VISION SENSOR WITH BUILT-IN AI

IV2 Series

Vision Sensor with Built-in AI

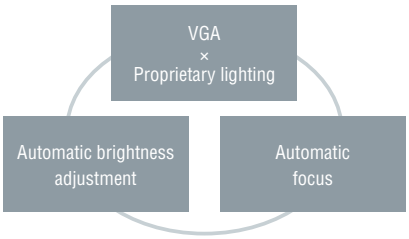
Simple and Impressive Detection Stability

Scan for More

5.7-inch control panel
for even greater ease of use

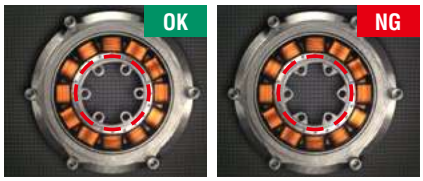
Imaging technology

The IV2 Series includes a built-in VGA, a high-performance lens, and proprietary lighting. Using a combination of optimised brightness and focus provides a clear representation of the target workpiece.



Optimal detection settings using AI

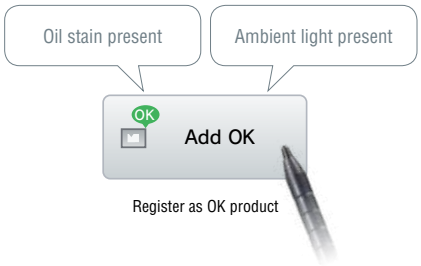
Simply register an OK product and an NG product to automatically configure the optimal settings. With no user-based variations to worry about, stable detection can be ensured for all users.



OK product registration　NG product registration

Additional learning possible for handling variations

Additional learning functions make it possible to handle variations such as individual product differences and environmental differences quickly. This greatly reduces downtime.

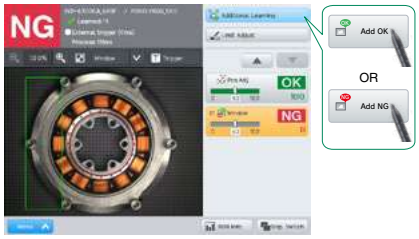


Large, easy-to-see screen for simple setup

The large screen size allows users to easily check the equipment operation status and image history. The touch panel–based operations make setting up and adjusting the sensor simple and intuitive.

Perform quick modifications as needed

When an unexpected variation of an OK or No Good product appears on the production line, quickly and easily modify the program to compensate. By using the IV2 Series control panel, adding new images to revise the program takes less than 1 minute.



Instantly view statistics and results

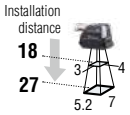
View OK vs No Good judgment result statistics in real-time for instant reporting. When using an SD card, search thousands of previously taken images and results to track production discrepancies.

LINEUP

Sensor head

Ultra-narrow field of view sensor model
(with attachment)

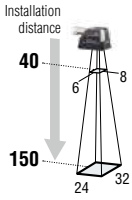
Monochrome AF type
IV2-G150MA
+
Magnifying lens attachment
OP-87902



(Unit: mm)

Narrow field of view sensor model

Monochrome AF type
IV2-G150MA

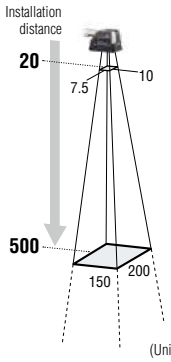


(Unit: mm)

Standard model

Colour AF type
IV2-G500CA

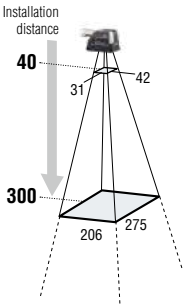
Monochrome AF type
IV2-G500MA



(Unit: mm)

Wide field of view sensor model
(Colour)

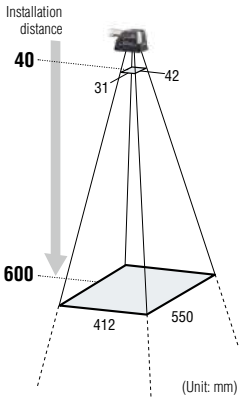
Colour AF type
IV2-G300CA



(Unit: mm)

Wide field of view sensor model
(Monochrome)

Monochrome AF type
IV2-G600MA



(Unit: mm)

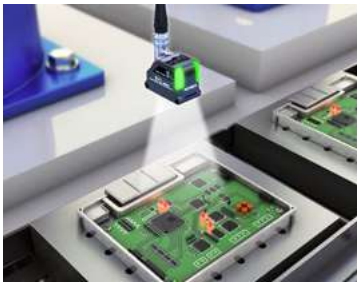
AF...Automatic focus model
* View and optical axis have individual differences.
* If a wider field of view or longer range is required, please contact your nearest KEYENCE sales office.

APPLICATIONS

Stamping-based product difference check

Processing-based metal component difference check

LED lighting check



Cap tightening check

Sealing tape presence

Mark detection on tyres

CONTACT SENSOR

GT2 Series

High-Accuracy Digital contact Sensor

Scan for More

High-precision detection using absolute method with 0.1 µm resolution and 1 µm accuracy

The absolute method can eliminate count skip and speed errors, ensuring the highest accuracy in its class (Resolution: 0.1 µm, Accuracy: 1 µm).

Rigid structure

Extraordinary detecting durability: 100 million cycles

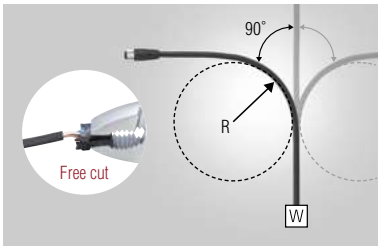
The all stainless steel construction of the spindle structure (shaft & bearings) reduced the weight of the GT2. Through these weight reduction, wear due to friction inside the spindle has been minimised. This has dramatically increased the endurance.

*GT2-P12K(L/F)/GT2-P12(L/F)

Flexible free-cut robot cable & oil-resistant relay connector

The cable between the relay connector and amplifier unit uses a flexible free-cut robot cable that withstands continuous bending. This allows the sensor to be installed on moving equipment. A detachable relay connector system is also used. This can greatly reduce replacement work during maintenance.

Withstands bending 20 million times without breaking (Typical usage)
Load (W): 250 g
Bend radius: 50 mm
Bending rate: 30 times/minute
(1 time includes left to right to original position)



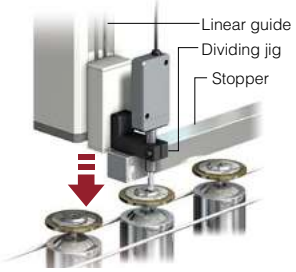
NEMA Type 13/IP67G

The sensor head, including the connector and cable section, complies with two standards - NEMA Type 13 and IP67G. The sensor head can be mounted almost anywhere, even in environments with splashing water or oil.

*GT2-P12K(F)/P12(F)

GT2 Air push type

Standard type



Air push type

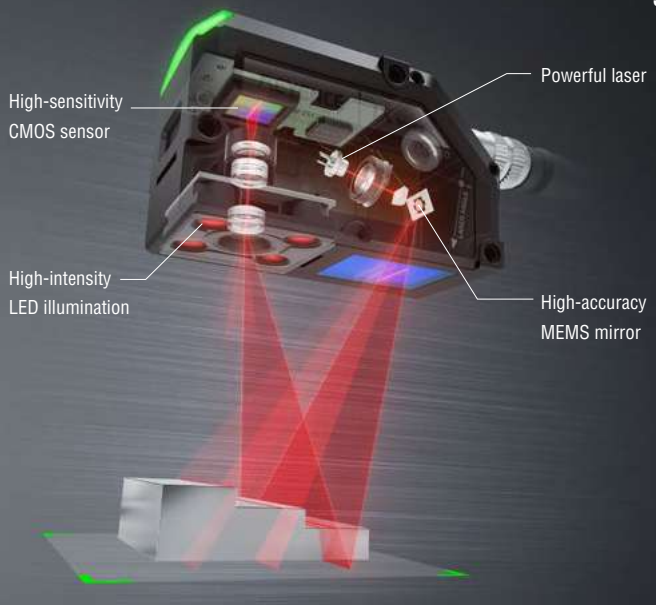
A complex jig is not necessary since there is no sensor head movement. In addition, errors in accuracy due to jigs have been eliminated.

IMAGE-BASED LASER SENSOR

IX Series

Introducing a Completely New Detection System — IX-H Technology

Scan for More



Identify your part position and measure the right spot, everytime

NEW METHOD **Drive Scan System**

▮ Camera-based target position detection

A camera is used to confirm the position of the target in order to correct the laser irradiation position.

▮ Laser-based tracking and height detection

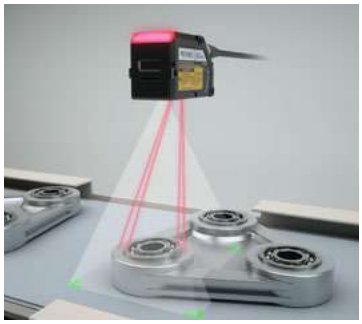
The laser irradiates the specified location and calculates the distance with the CMOS sensor.

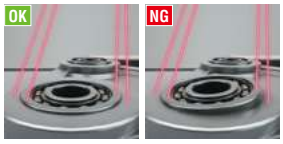
APPLICATIONS

Incorrect headlight assembly detection

▮ Conventional sensor	▮ IX-H
Positioning required	Image-based position adjustment
Multiple variety support difficult	Easily changeable programs
	No need for jigs

Incorrect bearing assembly detection





▮ Conventional sensor	▮ IX-H
Positioning required	Image-based position adjustment
Single-point detection	Height difference comparison
	Multi-point detection

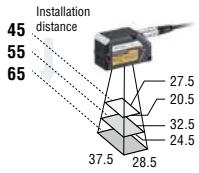
Detection tools

Step | Monochrome Area | Step (Line mode) | Height | MAX/MIN | Height Area

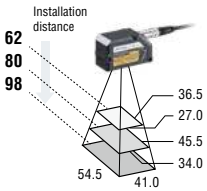
Sensor head ranges

(Unit: mm)

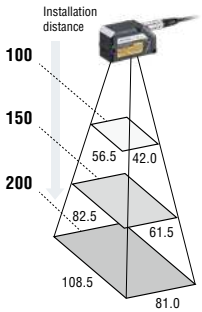
IX-055



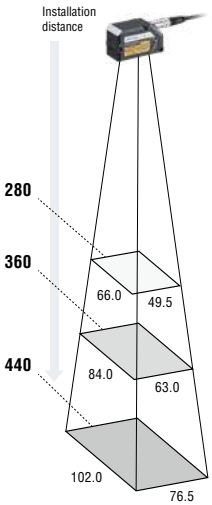
IX-080



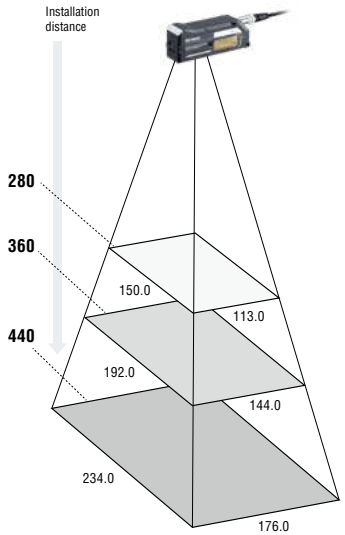
IX-150



IX-360



IX-360W NEW

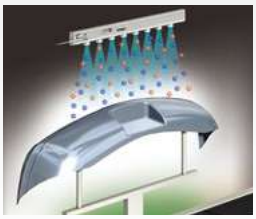


STATIC
ELIMINATOR

SJ-H Series

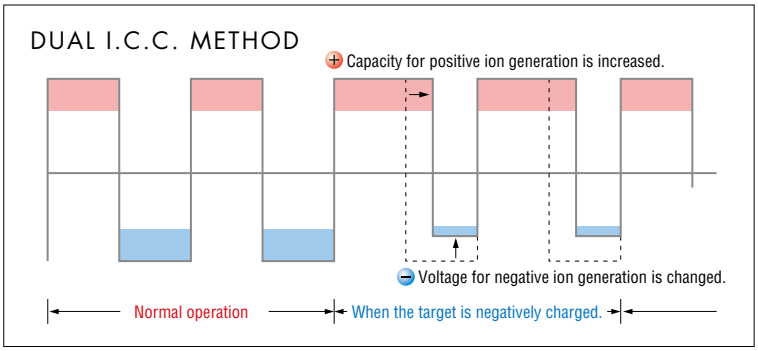
Ultra High-Speed Sheath-Sensing Ioniser

Scan for More



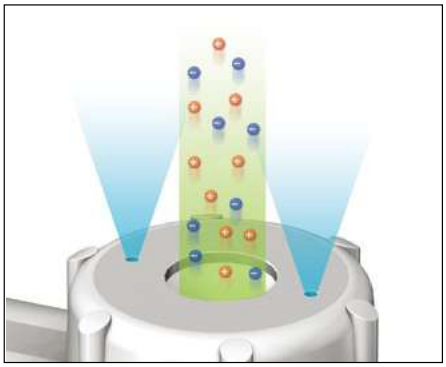
Dual I.C.C. system ensures optimum static elimination [Dual Ion Current Control]

The long proven I.C.C. system has been developed further. In addition to the conventional method that changes pulse duration to control ion generation, the Dual I.C.C. system allows changing applied voltage, resulting in a wider range of ion generation control in a unit of time. This enables optimum static elimination not affected by the change in static charges due to environmental causes such as temperature or humidity, or by the condition of the electrode probes.



Double Hole Electrode Probe

In addition to the sheath air guiding structure to minimise dust adhesion, the double hole electrode probe cap is used for the main electrode probes, which issues jets of air from the two holes. This ensures high-speed static elimination while maintaining laminar flows.

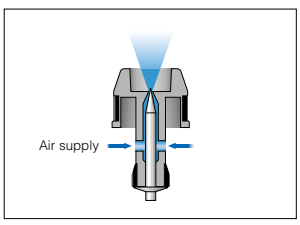


Maintenance-saving

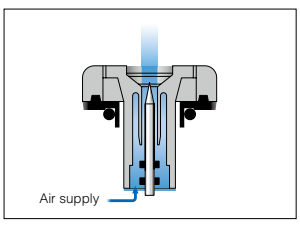
5 times less maintenance than conventional models*

The air guiding structure prevents dust adhesion on the electrode probes. By supplying clean and dry air, the system maintains the cleanliness of the electrode probes regardless of the surrounding environment. This ensures an extraordinary maintenance-saving effect. The number of maintenance steps can be greatly reduced.

* Comparison with a conventional model (SJ-G)



Conventional model
(Cross-sectional view of the electric probe cap)



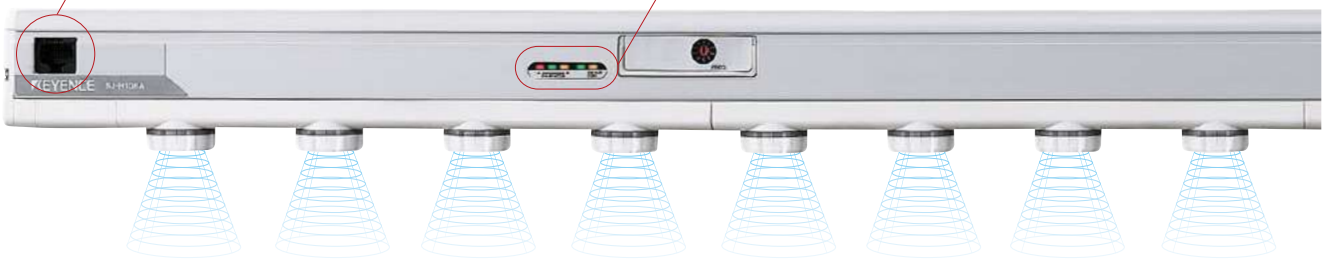
Sheath air guiding structure
(Cross-sectional view of the electric probe cap)

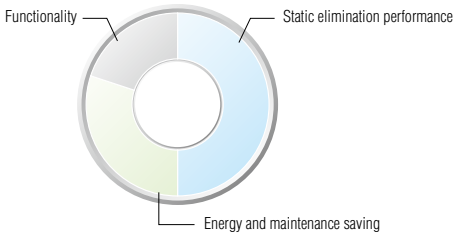
Low-voltage 24 V wiring

Low-voltage 24 V wiring eliminates the adverse effect of discharge on cabling and surrounding equipment, allowing the construction of a highly reliable system.

Indicators and outputs featured as standard

Safety functions, including the low-voltage 24 V wiring, abnormal discharge detection output, electrostatic charge monitor, and ion level alarm are featured as standard.





SPECIFICATIONS

Model		SJ-H036A	SJ-H060A	SJ-H084A	SJ-H108A	SJ-H132A	SJ-H156A	SJ-H180A	SJ-H204A	SJ-H228A	SJ-H252A	SJ-H300A
Ion generation method		Corona discharge method										
Structure		Shock-proof, resistance-coupled type										
Voltage application method/applied voltage		Pulse AC method/±7000 V										
Ion balance control method		Dual I.C.C. method										
Ion balance *1		±30 V										
Operating distance		50 to 2000 mm										
Control input		NPN open collector or non-voltage contact signal										
Control output		NPN type photo-relay, 100 mA max. (40 V max.)										
Ratings	Power supply voltage	24 to 36 VDC ±10%										
	Current consumption	560 mA (at 24 VDC)/400 mA (at 36 VDC)										
	Overvoltage category	I										
	Pollution degree	2										
Primary features		Condition alarm, ion level alarm, alarm output										
Air purge connection port		Rc 1/8										
Air purge air supply pressure		0.5 MPa or less										
Materials	Electrode probe	Tungsten										
	Body	ABS resin/PC										
Environmental resistance	Ambient temperature	0 to +40°C										
	Relative humidity	35 to 85% RH (No condensation)										
Effective length *2		360 mm	600 mm	840 mm	1080 mm	1320 mm	1560 mm	1800 mm	2040 mm	2280 mm	2520 mm	3000 mm
Total length (A) *3		380 mm	600 mm	840 mm	1080 mm	1320 mm	1560 mm	1800 mm	2040 mm	2280 mm	2520 mm	3000 mm
Weight	Controller	150 g	–	–	–	–	–	–	–	–	–	–
	Static elimination bar	500 g	780 g	980 g	1200 g	1400 g	1550 g	1750 g	2000 g	2350 g	2700 g	3150 g

*1. Measurement value under the following conditions:

Operating distance	300 mm (22 Hz)	600 mm (10 Hz)	1500 mm (1 Hz)
Operating ambient temperature	0 to +40°C		
Operating ambient humidity	35 to 65% RH		

Under a 0.3 m/s downflow

*2. The effective length is determined based on the static elimination range at a distance of 50 mm.
*3. The total length includes the end units.

STATIC
ELIMINATOR

SJ-E Series

Hybrid Ultra High-speed Sensing Ioniser

Scan for More

NEW

Electrode probe with supersonic structure

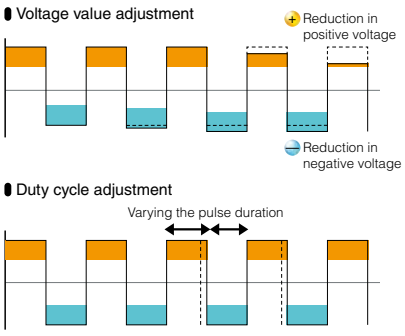
This model uses a supersonic structure developed by KEYENCE for the first time in an ioniser, and because the ions travel faster than the speed of sound, it boasts the world's fastest static elimination performance with minimal air flow.

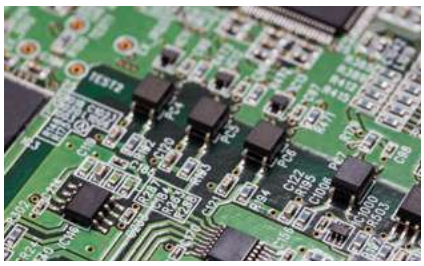
Hi-Power I.C.C. system

In addition to the ion generation control with a variable pulse duration, this model enables a voltage change of approximately 2.5 times the conventional system. Optimal static elimination can be achieved.

High-performance ion generation system

A high-speed frequency of a maximum of 100 Hz and a 15% increase in ion generation over conventional models are achieved. Effectively removes static electricity for objects moving at high speed and highly charged objects, which are conventionally difficult targets for static elimination.





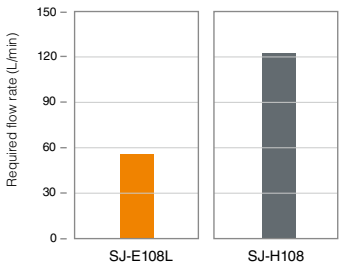
Energy saving

World's smallest airflow

60% reduction compared to conventional models

Because of the correlation between static elimination speed and air volume, air volume needed to be increased to achieve high-speed elimination of static electricity. The SJ-E Series uses a supersonic structure to achieve high spec elimination of static electricity while reducing the air volume used by 60% compared to conventional models.

Required flow rate comparison graph
Distance: 300 mm, Static elimination time: 1 sec



STATIC
ELIMINATOR

SJ-L Series

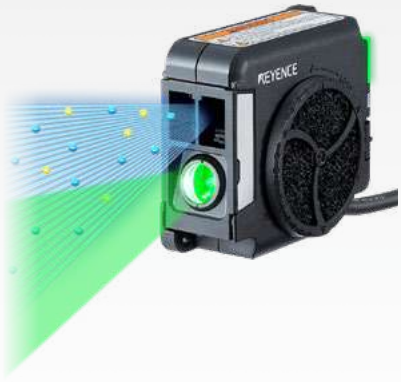
Easy Static Elimination for Every Application

Scan for More

NEW

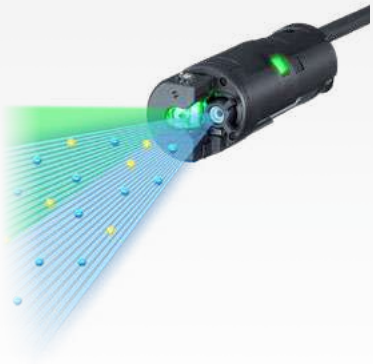
Blower type

SJ-LF Series



Nozzle type

SJ-LM Series



Gun type

SJ-LG Series

Compact Body for Easy Mounting

The small body design means mounting is easy, even in tight spaces. The all-in-one structure with a built-in amplifier makes installation even easier.

Visualised Static Electricity for Easy Confirmation of Effects

There's no need to check the effect using another instrument. Anyone can now confirm the effects of static elimination by the colour change of the visualising light.

Long Service Life and High Durability Make for Easy Maintenance

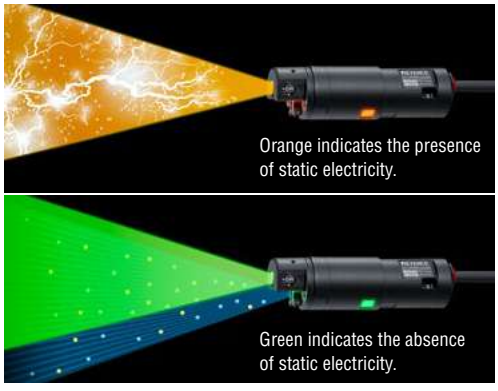
The electrode probe has been designed to achieve a higher enclosure rating, ensuring easier maintenance. The durability has also been improved in order to prevent damage through frequent use, saving replacement time and costs.

Static electricity made visible

The visualising light enables instantaneous confirmation of the elimination of static.
The effects can be checked easily both during startup and operation.

Blower type

Nozzle type



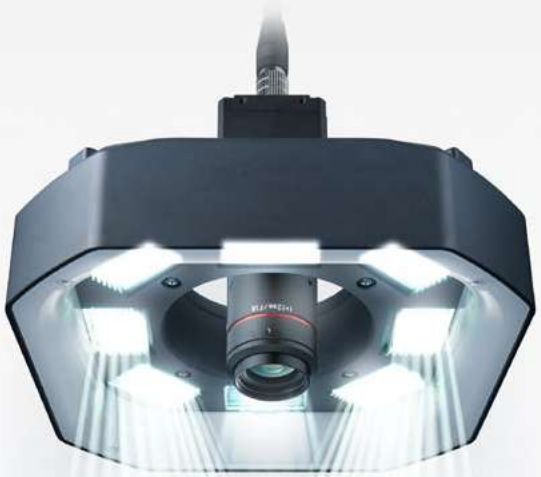
Dust made visible

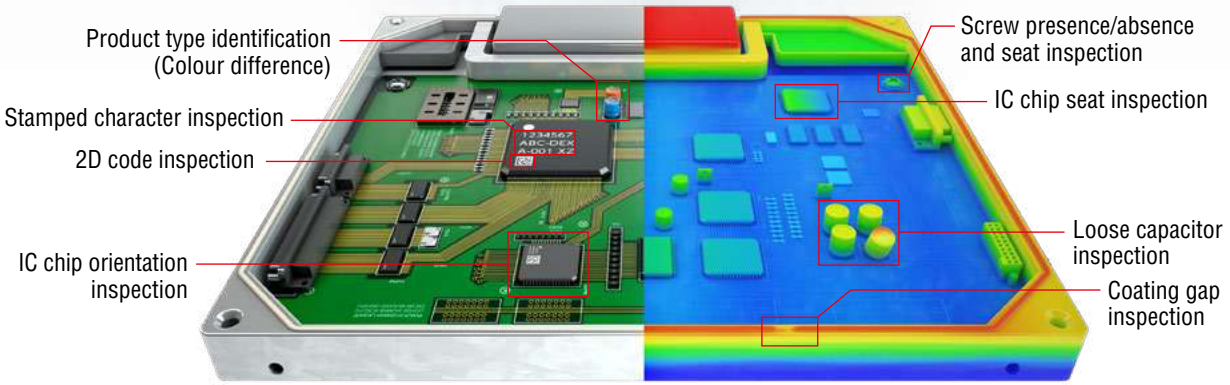
The dust check light greatly improves the visibility of dust removal. Even microscopic foreign particles, which can result in defective workpieces, can be found.

Gun type

Vision System with Pattern Projection Lighting

Scan for More





Simultaneous 2D + 3D inspection

Inspection with no blind spots with the use of eight-directional light transmission

The lighting incorporates Pattern Projection from eight light sources. This enables inspection without influence from target surface conditions or contrast by adding height data to conventional 2D inspection. The result is dramatically improved inline inspection stability.

3D inspection lighting

Pattern projection accurately captures target appearance

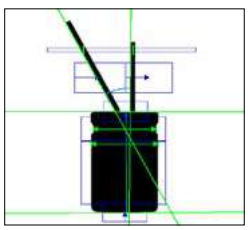
Multiple stripe patterns are projected at high speed. An ultra-high-speed CMOS sensor and processor analyse the light reflected from the targets in real-time to generate a 3D height image.

2D inspection lighting

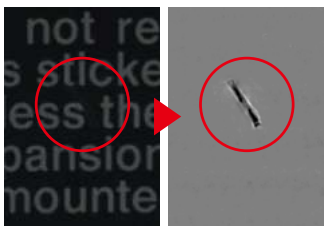
LumiTrax™ support for resolving problems with conventional imaging

Take advantage of numerous KEYENCE proprietary algorithms including LumiTrax™ Capture Mode, Auto-Teach Inspection, and Measurements and Dimensions Tools. This ensures stable inspection without influence from surface conditions or variations between good parts.

Dimension inspection



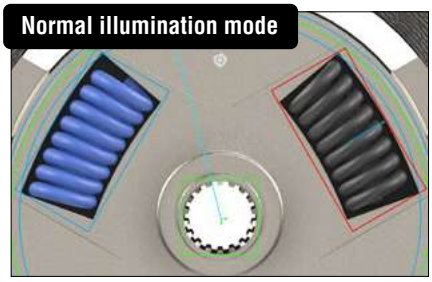
Appearance inspection

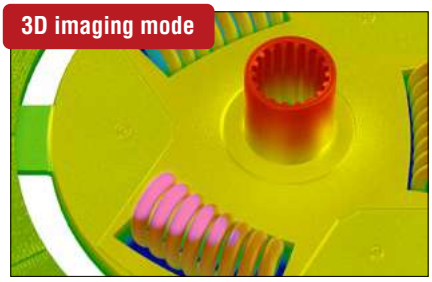


Solve inspection applications that incorporate height data alongside conventional image processing inspection

Clutch disc inspection

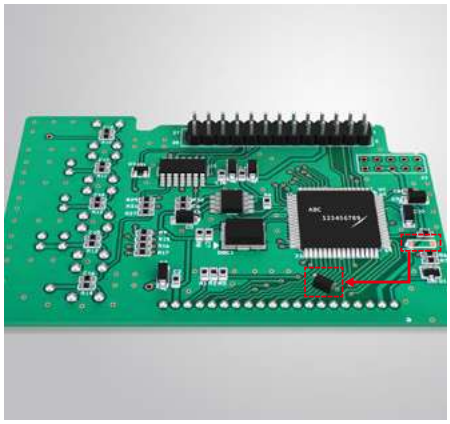
Capable of inspection for centre misalignment as well as spring colour difference checks with a colour camera. Also inspects for spring seating in the 3D difference check.





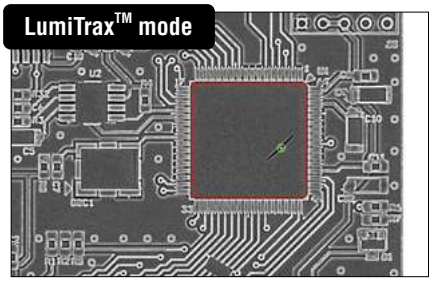
Normal illumination mode Product type difference checks using spring colours and assembly position inspection for centre components.

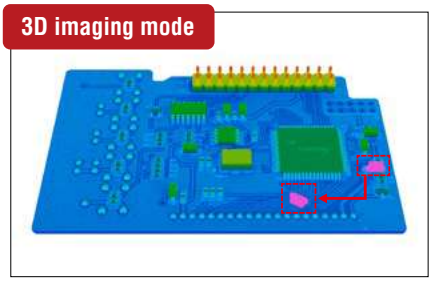
3D imaging mode Inspects for spring alignment across multiple locations with 3D differentiation tools.



Appearance and foreign particle inspection on PCBs

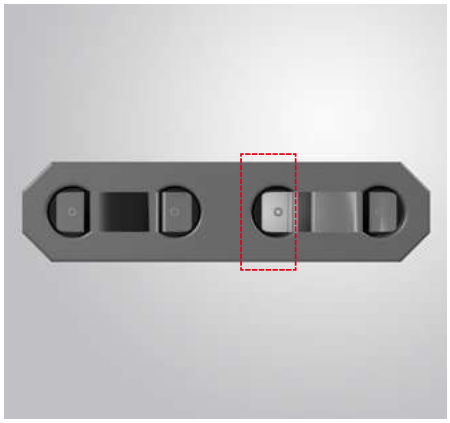
Inspect for defects only, without influence from chip surface markings using LumiTrax™ mode. Inspect for fallen or foreign particles on PCBs with 3D detection tools.





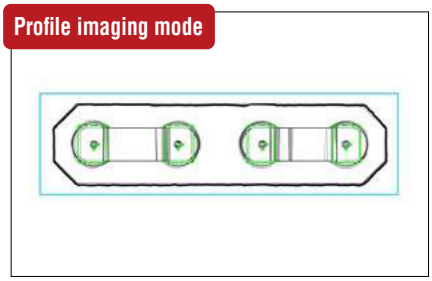
LumiTrax™ mode Inspect for chip surface defects only, without influence from surface markings.

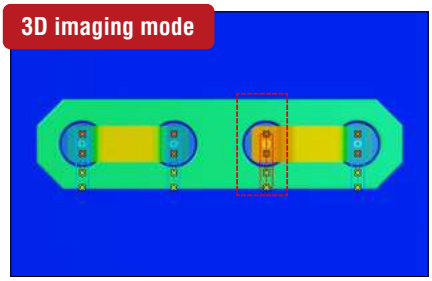
3D imaging mode Capture variations in the overall PCB with 3D detection tools to inspect for the presence of fallen or foreign particles.



Lithium-ion battery terminal inspection

Captures profiles and inspects terminal positions. Captures terminal height data in 3D imaging modes to inspect for terminal weld disassembly.





Profile imaging mode Profile capture stabilises searching by emphasising the appearance of terminals with low contrast.

3D imaging mode Inspect for terminal height differences with battery cover standard positions using profile detection tools.

ULTRA HIGH-SPEED
HIGH-CAPACITY
MULTI-CAMERA IMAGE
PROCESSING SYSTEM

XG-X Series

Customizable Vision System

The power to take you ahead

Scan for More

EtherNet/IP

PROFINET

Seamless creation of inspection results with visioneditor

Flowchart programming offers the flexibility to bring your concepts to life.

"XG-X VisionEditor" is software designed for quick development of vision inspection applications, creation of user interfaces, easy debugging, simulations, and more. Providing Stable as Well as Quick Processing Times. The XG-X series is tuned to fully utilise all of its cores as standard. Users are able to make use of the full power of the XG-X Series without having to learn how to use it.

A modular type image processing system that offers expandability

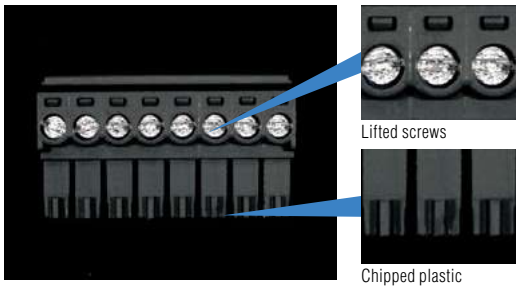
- The full capabilities of the controller are demonstrated to the fullest extent by 3 expansion units and it is the first in the industry to support the mixed connection of line-scan cameras and area cameras
- A modular controller that offers expandability

Inspect in all dimensions with a single device

Stable inspection is possible using intensity information from the 2D image, as well as the 3D height information.

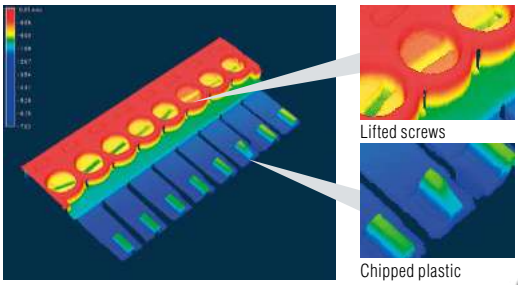
2D Greyscale Image

Some defects can be difficult to detect with the 2D image only.



3D vision inspection

Defects based upon height inconsistency can be measured or extracted.



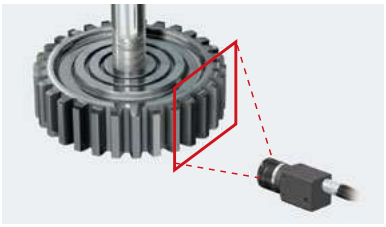
Line scan camera

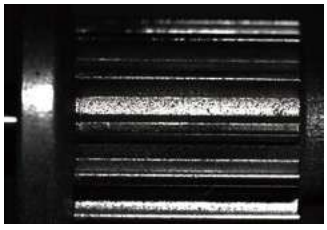
Obtain up to 67 megapixel images with a single camera

Allows stable detection with even lighting

Area Cameras

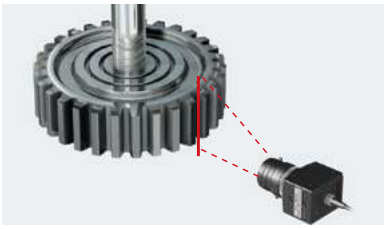
Area cameras cannot record optimum images due to the glare on the R part.

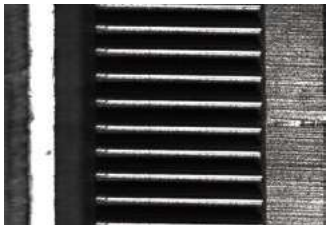




Line Scan Cameras

By recording images from an evenly lit part one line at a time, glare on the part is eliminated.



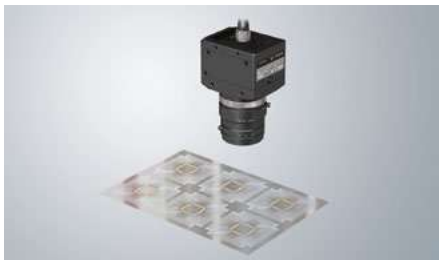


Defects on blow moulded parts

Visual inspection of a bearing

Visual inspection of a roller

Inspection of broken solar cell patterns



Visual inspection of lead frames

Visual inspection after printing electrodes

MEASUREMENT SYSTEMS

IM Series

Image Dimension Measurement System

Scan for More

NEW

Perform a Complete Set of Measurements With Just One Touch of a Button

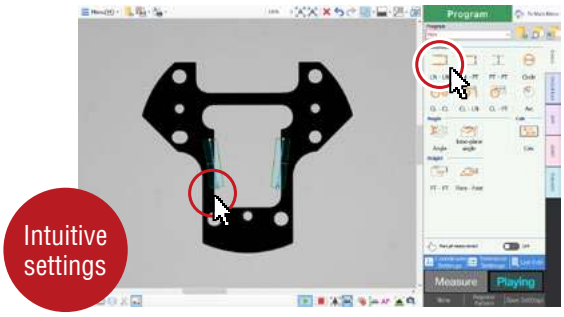
IM-8000 Series Automation Substantially Reduces Measurement Time

- Simultaneous Measurements Performed in Seconds
- Intuitive Interface That Anyone Can Use
- Measure Small, Large, and Three-Dimensional Parts

The IM-8000 Series solves problems with conventional measurement tools.

Fast

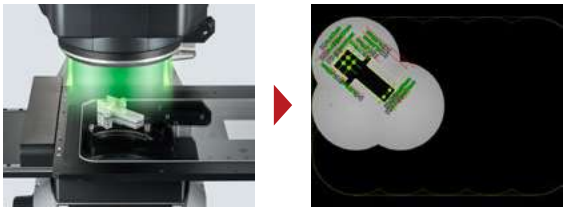
- No time-consuming positioning work or datum setup required
- Measure up to 300 dimensions of up to 100 parts with the push of a button
- Automatically saves measurement data and creates inspection reports



Select the tool from the menu, and define the general feature location with a few clicks of the mouse.

Consistent

- Automatically identifies measurement points, ensuring that the same measurement results are obtained each time
- Automated focus adjustment prevents inconsistent values
- The simple place-and-press operation means consistent measurement results regardless of the operator



Easy

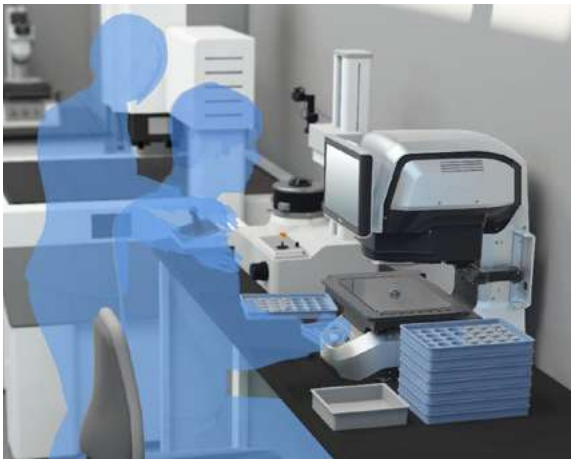
- Easily set up measurements with just a few clicks
- Setting up virtual lines and points is just as simple
- No measurement expertise is required to measure parts

Automatic Search for Parts

The IM-8000 searches for and measures parts anywhere on the stage. There is no need to place parts directly under the lens. The high-speed motion of the stage over a wide area ensures that the part will be found and measured.

For a Variety of Inspection Needs

Inspections of Prototypes and First Off-Tool Parts



- Improvement of productivity through reductions in launch periods
- Measurement that does not depend on the inspector's experience level
- Measurement based on traceability to international standards

In-Process Inspections of Samples and Parts

- Improvement of equipment availability through reductions in setup time
- Improvement of yield rates through better accuracy in equipment adjustment
- Symptom management within processes

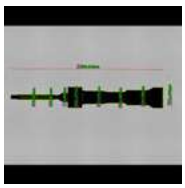
Pre-Shipping Inspections

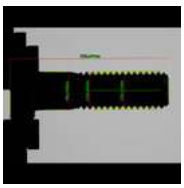
- Allows for shipping inspections with shortened delivery schedules
- Reduction of the work required to create inspection report tables
- Reduction of training time and labour costs associated with inspectors

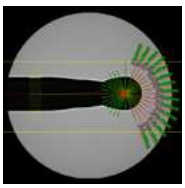
Incoming Inspections

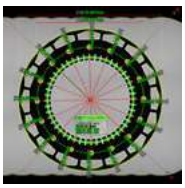
- Can manage acceptance inspections for multiple types with constant standards
- Reduction of the risk of defects even when the quantity of inspections is increased
- Improved quality through measurement of previously uninspected points

In a wide variety of applications…


Lathe processed part

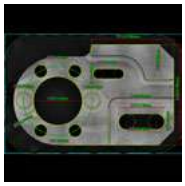

Screw and bolt


Tool

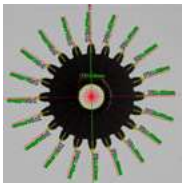

Pressed part


Spring

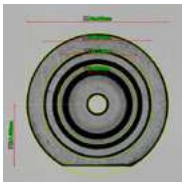

Extrusion moulded part


Machined part


Die cast part


Gear


Injection moulded part


Transparent part


Connector

Digital Microscope

Scan for More

4K HIGH ACCURACY MICROSCOPE

View, Capture and Measure with Just One Device.

VIEW

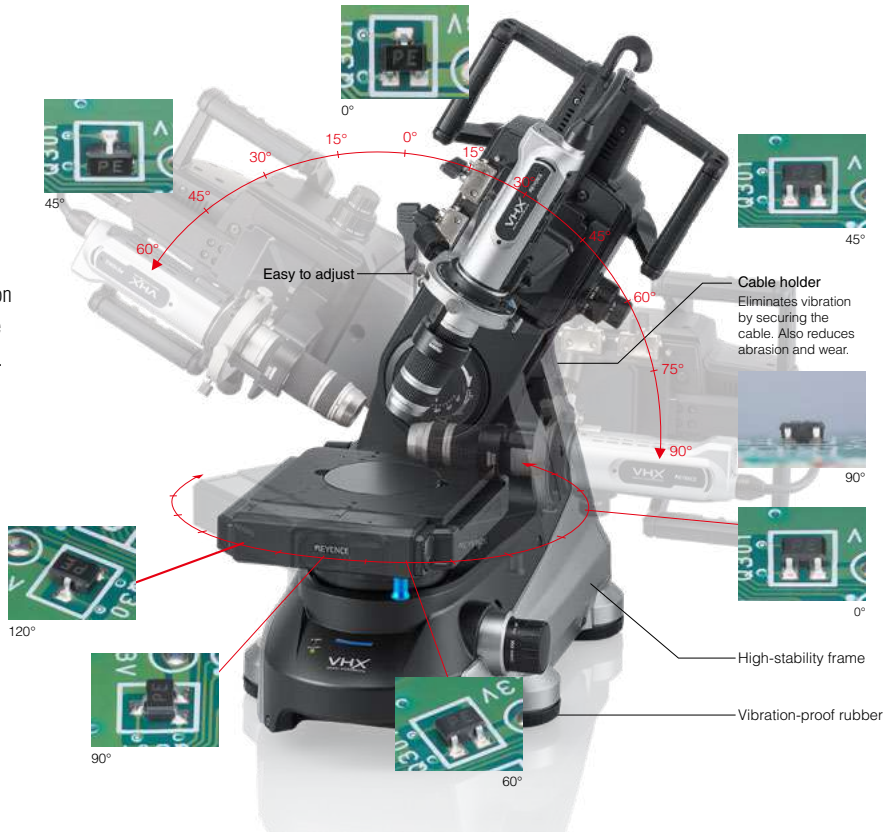
CAPTURE

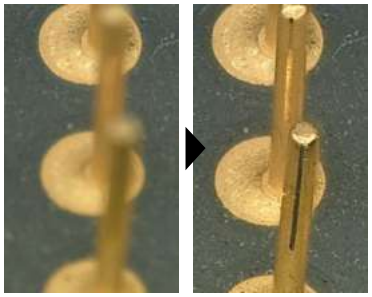
MEASURE

Flexibility

Free-angle observation system with XYZ motorised stage

Adjustment mechanisms allow easy field of view alignment, rotation and oblique axis motion. Eucentric design ensures that the sample stays centred in the field of view even if the lens is tilted or rotated.





SPEED

Handheld possibilities
Save time on sample preparation by remote observation dircetly on surface.

KEYENCE design
Fast electric motors and image processing.

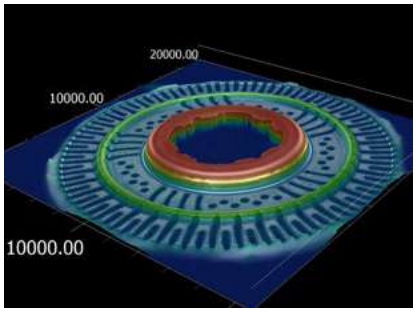
Large depth of field
Thanks to large depth of field observe evrything in full focus.

Main functions are accessible with the press of a button

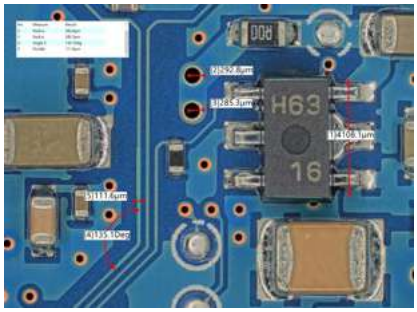
EASE OF USE

Easy mode menu
Both experienced and new users can operate the microscope easily.

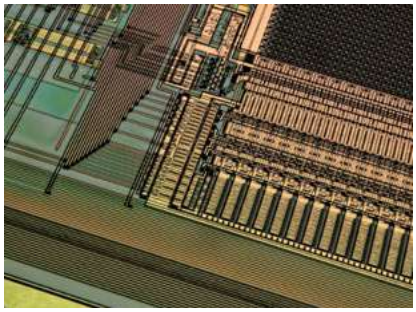
Reproduce settings
Image setting can always be reproduced ensuring user independent results.



Razor blade (150x) overall contours

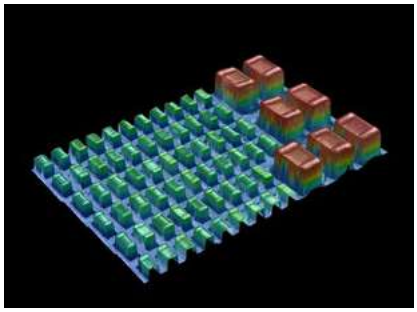


PCB board

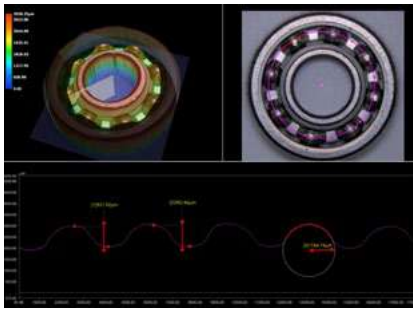


CMOS chip (400x)

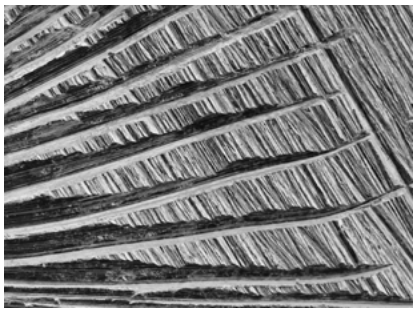
Solar battery (1000x)



Mounted PCB (100x) overall contours

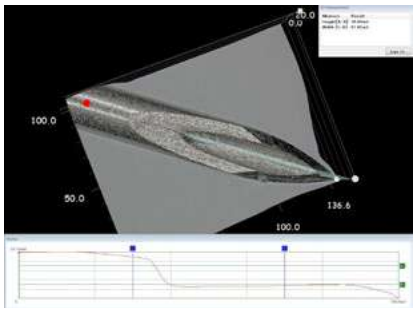


Bearing (20x)



Aluminium surface (100x)

Large Depth of Field (screw)



Needle

3D OPTICAL PROFILOMETER

VR Series

3D Optical Profilometer

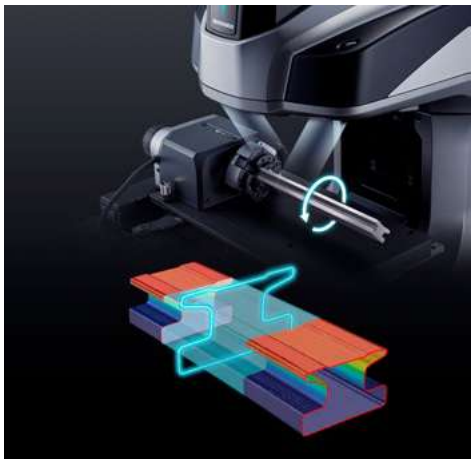
Scan for More

NEW

Measure Profiles, Flatness, and Roughness in as Little as 1 Second

Automatic rotation to perform measurements on all sides

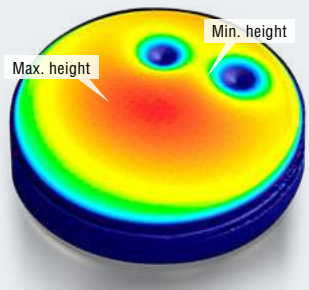
New feature



3D Optical Profilometer

Non-contact surface measurement

Measurement time
▶ From 1 second

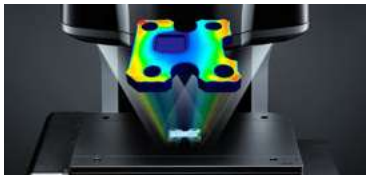


- Max and min heights can be reliably measured
- Scans in as little as 1 second
- Repeatable and reproducible measurement results

5× greater scan range

Non-contact, wide-area measurement

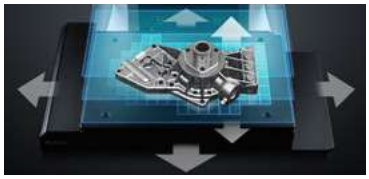
Large measurement range covers
300 (L) × 150 (W) × 70 (H) mm



4× faster than conventional systems

High-speed data acquisition and analysis

Scan and measure a surface in as little as 1 second



Industry's first

Automatic operation with place-and-measure capability

Automatically identifies and adjusts measurement settings based on object size

XYZ traceability

The measurement results are traceable according to international standards, so users can obtain highly-reliable measurements.

Z	X-Y
National standard	National standard
National Institute of Advanced Industrial Science and Technology (AIST)	National Institute of Advanced Industrial Science and Technology (AIST)
JCSS accredited organisation	JCSS accredited organisation
Block gauge / ring gauge	Reference scale
3D measuring machine	Coordinate measurement equipment
Calibration block	Calibration chart

VR-6000

3D LASER SCANNING
CONFOCAL MICROSCOPE

VK-X Series

3D Laser Scanning Microscope

Scan for More

NEW

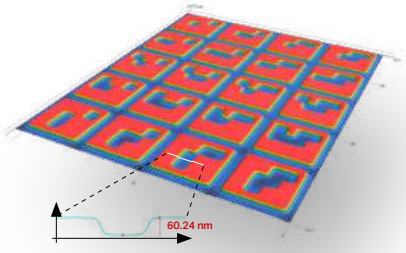
Precise surface analysis over a large area
Core Concept: Fast, easy to use, 100% reliable

Scan any surface or material

Transparent, shiny, matt, flat or curved, soft or hard

Triple Scan Measurement Principle

0.1 nm height resolution

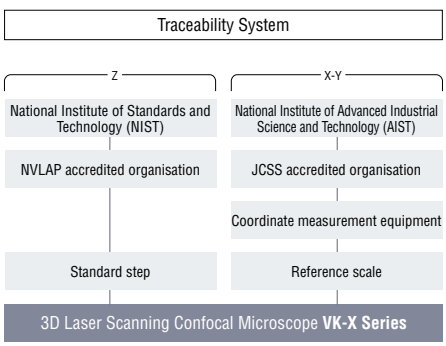


Nanometre resolution for measuring height differences of transparent targets

Wafer micropattern (2500×)

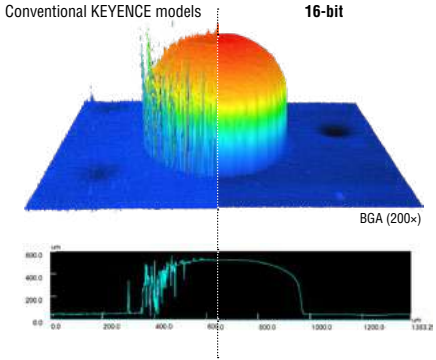
XYZ traceability

Laser confocal measurements are based on a traceability system that complies with national standards, ensuring reliable precision, accuracy, and repeatability.



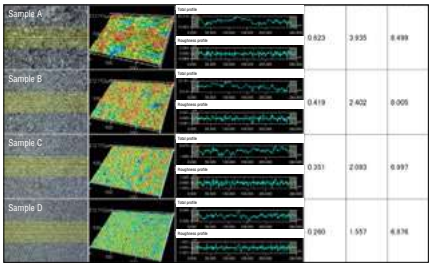
High-accuracy 16-bit capturing

thanks to a high-sensitivity photomultiplier, accurate 3D data can be captured.



Automatic analysis AI-ANALYSER

Multi-File Analyser visualises and quantifies the difference among multiple samples.



Roughness measurement of blasted surface (1000×)

HANDHELD COMPUTERS

BT-A700 Series

Handheld Computers

Scan for More

NEW

Incredibly Wide Reading Range at High Speed

Before	After
	
Get off the forklift when reading	Read directly from the forklift

HANDHELD COMPUTERS

BT-A500 Series

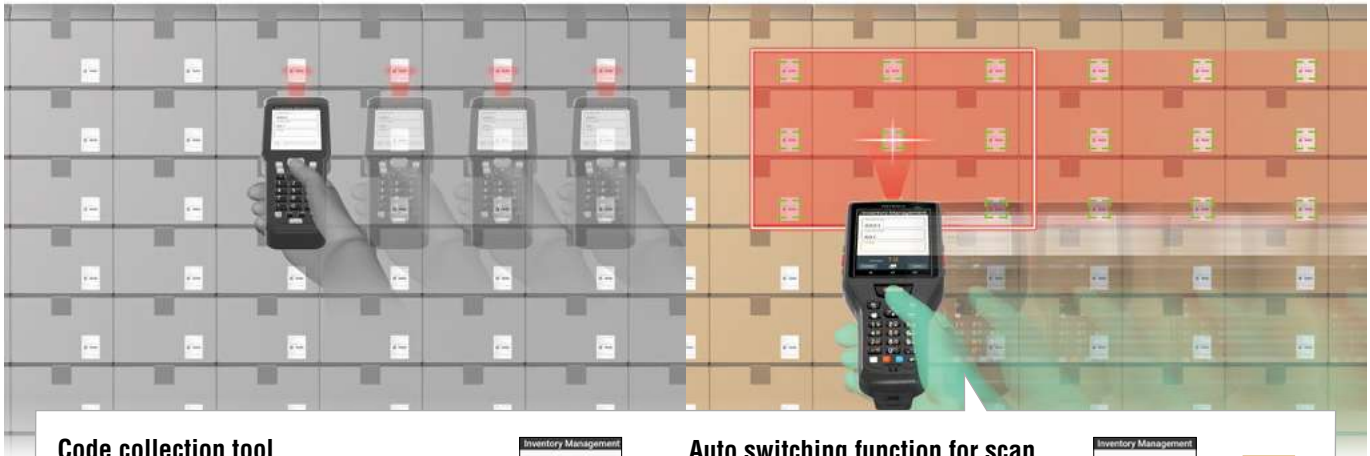
Increased Operation Speed with Android™

NEW

Batch Reading of Multiple Codes

Reading up to 100 codes at once improves work efficiency drastically during receiving/shipping inspections or inventory management.

Before	After
Reading many codes takes time	Instant batch reading of many codes at once

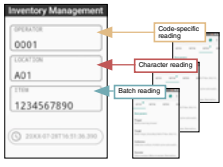


Code collection tool

Up to 100 scanned codes can be saved and output to specified input fields. Configurable data transmission interval and inter-data separators allow for batch reading without additional programming.

Auto switching function for scan settings

Assigning the scan settings with each text box in the application in advance enables to switch the settings when text box is focused. This function can automatically switch the scan settings, such as code-specific reading, character reading, and batch reading, without modifying the program.



Switch settings without program modification

Common benefits of BT-A700 and BT-A500

Durability to Handle Tough Conditions

Highly durable rubber bumper

The optional rubber bumper provides 3 m drop resistance, and the additional full-body protection also improves resistance to wear and tear.

IP65 Waterproof and Dustproof

KEYENCE's superior sealing technology developed for sensors used in harsh environments achieves IP65 rating. The device can be used even when exposed to water and dust.

Gorilla Glass

Impact and scratch resistant

IP67 rating

Waterproof and dustproof

Instant Reading of Codes under Any Conditions

Instant reading even for codes with poor legibility due to dark conditions or plastic wrapping increases operational efficiency significantly.

Before	After
Unreadable due to plastic wrapping	Readable even with plastic wrapping

Barcode reconstruction function

The barcode reconstruction function synthesises the scanned data if any readable bars or spaces remain in the barcode. This enables accurate reading of barcodes that are partially missing or obscured due to glare from plastic wrapping etc.

Plastic wrapping | Wrinkles | Damaged

Geometric correction technology

This function corrects the captured image to improve both code reading speed and accuracy.

NEW

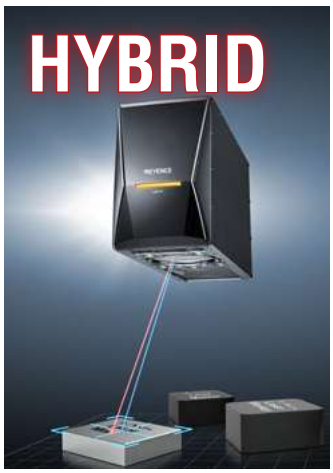
3-Axis Hybrid Laser Marker

Scan for More

3-AXIS UV LASER MARKER

MD-U Series

The optimum solution for marking when high contrast is desired with minimal surface damage.



3-AXIS HYBRID LASER MARKER

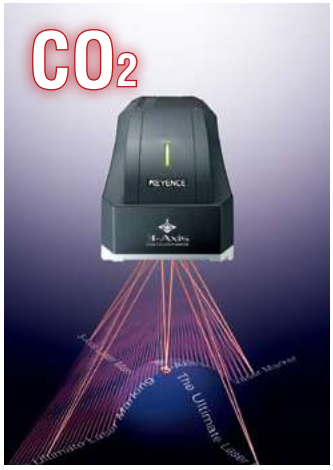
MD-X Series

The most versatile, general purpose marking solution for resins, plastics, films, foils and metals.

3-AXIS FIBRE LASER MARKER

MD-F Series

The optimum solution for black-colour marking and engraving on metal where a high output power is required.



3-AXIS CO_2 LASER MARKER

ML-Z Series

The optimum solution for marking materials such as resins, labels, glass and processing thin films.

EXAMPLE LASER MARKING APPLICATIONS


AC adapters

Medical tubing

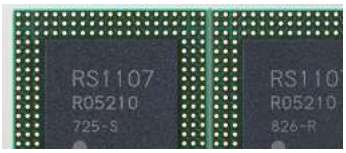
Earbuds


Lead frames


Steel instruments

Medicine bottles

EXAMPLE LASER MARKING APPLICATIONS



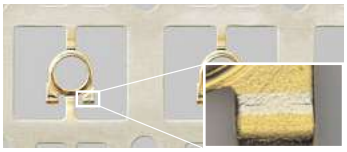
Moulded Packages (BGA)


Metal Casting


Anodised Housings

On-Board Instrument Panel Switches

Precision Tools


Gold-Plated Connectors

EXAMPLE LASER MARKING APPLICATIONS

Vehicle body frames
(PAINTING AFTER MARKING)

Bearings


Engine blocks
(HIGH-SPEED 2D CODE MARKING)


Thin metal sheet processing

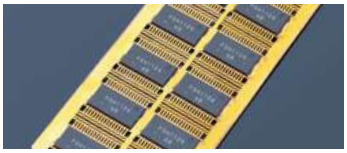

Key cylinders

Frame ICs burr removal

EXAMPLE LASER MARKING APPLICATIONS


Film Cutting


Surface laver removal

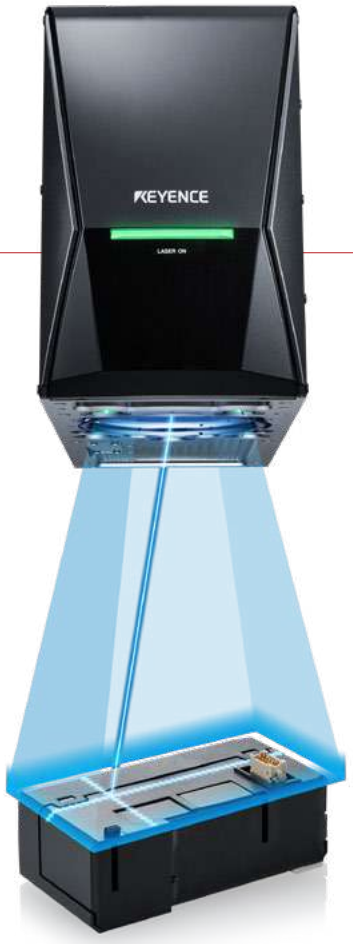

IC Marking


Motor Housing


Gate Cutting

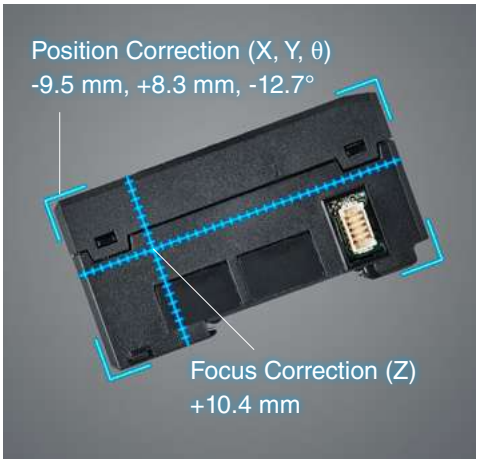
Carton Printing

Detects and Automatically Corrects Distance and Position



Full-Field Auto-Focus

The built-in distance sensor and camera track positional and focal deviation of the target. These features prevent printing defects due to changes in part position, which can be a problem when laser marking.



NEW

3-Axis Hybrid Laser Marker
MD-X Series

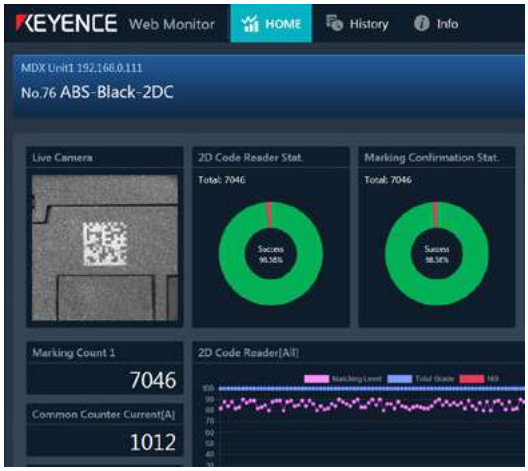
Marking and Inspection with a Single Unit

High Quality, High Output, Long Service Life

The MD-X Series provides both the high beam quality of YVO_4 lasers and the high output of fibre lasers. Clear and fast marking on both resin and metal can be performed reliably for a long period of time.

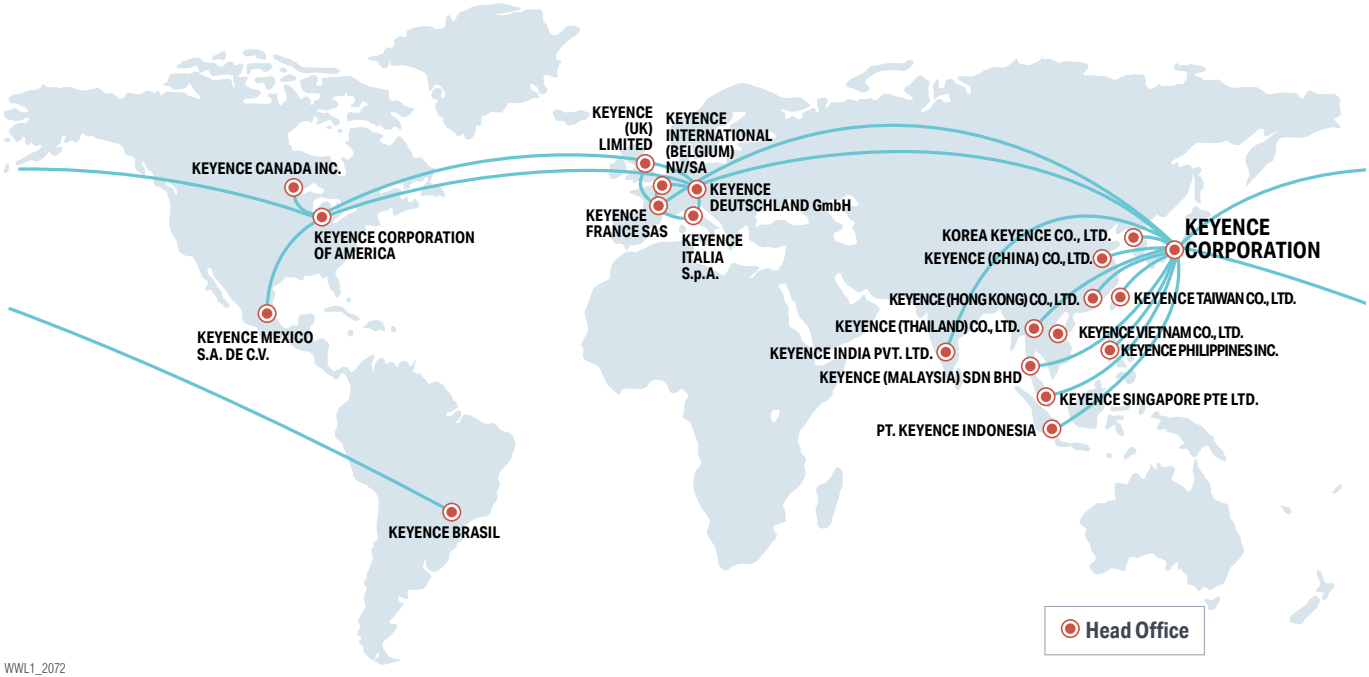
Print Inspection, Predictive Maintenance

Inspections can be performed after marking, without the need for external equipment. Predictive maintenance of the laser marking process is achieved by monitoring both the laser power and flaws on the lens.



WORLDWIDE DIRECT SALES NETWORKS

(240 offices in 46 countries)



WWL1_2072

WW1_US_2093

CONTACT YOUR NEAREST OFFICE FOR RELEASE STATUS

CONTACT US

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+32 (0)15 281 222

01KIB_GB-2033

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